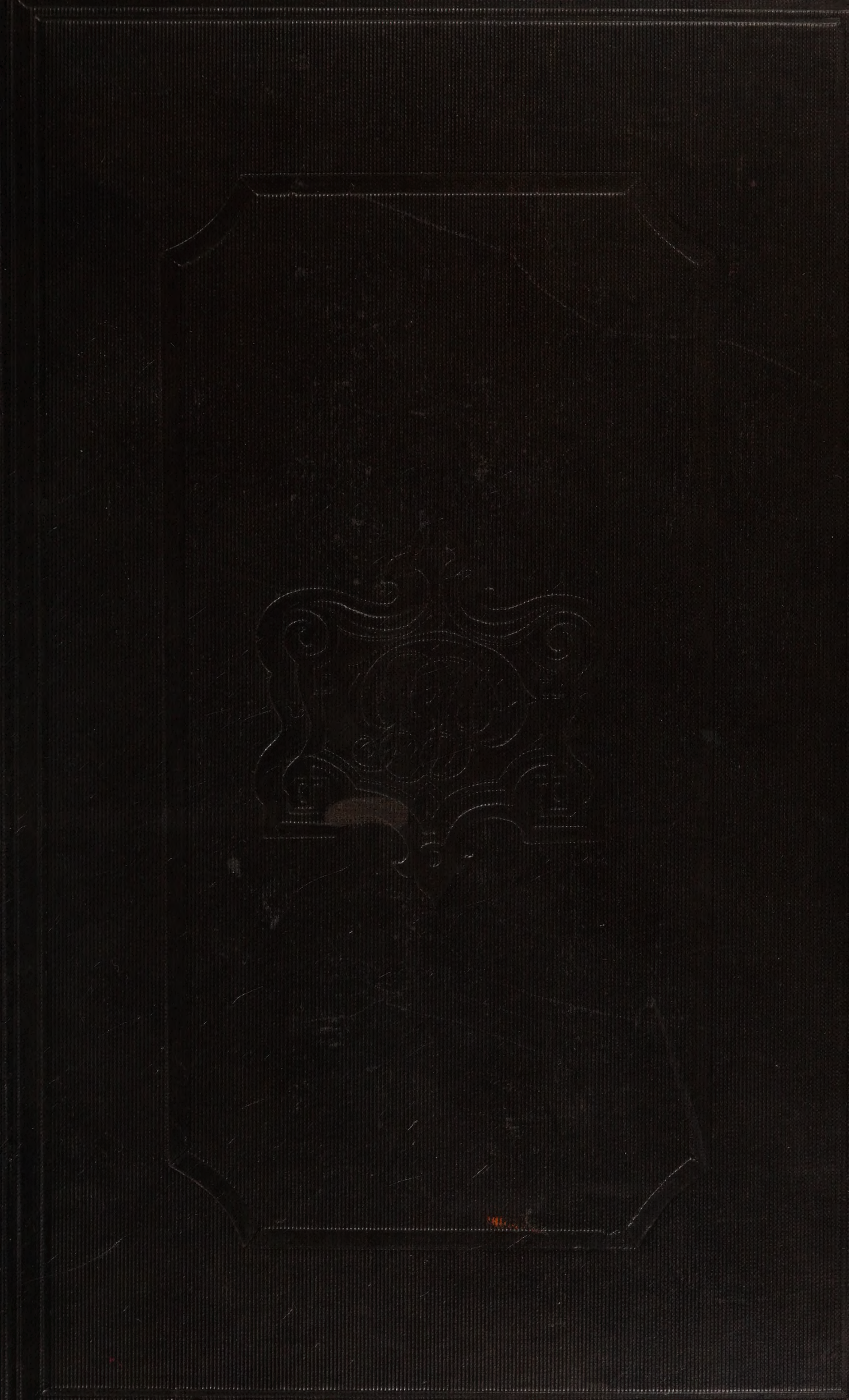


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A TREATISE

ON

DISEASES OF THE AIR PASSAGES:

COMPRISING

AN INQUIRY

INTO THE

HISTORY, PATHOLOGY, CAUSES, AND TREATMENT,

OF THOSE

AFFECTIONS OF THE THROAT

CALLED

BRONCHITIS, CHRONIC LARYNGITIS,

CLERGYMAN'S SORE THROAT,

ETC., ETC.

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PREFACE.

In presenting the following Treatise to the medical public, I am fully aware, that views of the pathology of disease, and of its treatment, differing in any degree from those generally admitted by the profession, are received by its members, with distrust and hesitation. But, so far from complaining of this, I am, and ever have been, among those, who have condemned the disposition, manifested by a part of the profession in America, to receive, unquestioned, the observations and conclusions of certain pathologists; and to adopt such views as established truths in medicine.

In the following pages, I have presented a series of observations and facts, with regard to the phenomena of disease, and the effect of remedies upon that disease, which it may be in the power of every practical man, to verify or disprove.

I ask, then, that the inquiry be fairly made, and if it shall be found, that the conclusions which have been adopted; as to the nature of disease, and the effect of the treatment upon it, are unphilosophical and untenable—let them be discarded.

As an apology, however, for what may be deemed by some, an obtrusion upon the profession, of individual views, of the nature and treatment of disease, I will take the liberty of stating, that I have been urged in such a manner, by many distinguished medical gentlemen, of different parts

of the Union, to publish these views, that I have not felt myself at liberty to refuse. It is in compliance with these requests, that the publication of the present work has been undertaken.

For the imperfections of the work, I have but one apology to offer. It has been prepared amid the pressure of constant, and constantly accumulating professional engagements.

12 Clinton Place, New York, October, 1846.

PREFACE

TO THE SECOND EDITION.

NEARLY three months ago, I was notified by my publishers that the first edition of this work was about exhausted, and I was desired to prepare for the publication of a second edition. But, as I was then engaged in the preparation of a small treatise on *Croup*, which has since been published, I could not, immediately, give my attention to a revision of this volume; and I was unwilling it should appear again before the professional public with the imperfections that marred the first edition.

I have deemed this explanation necessary, inasmuch as many inquiries about the work have been made by my professional friends.

The book has now been carefully revised, and important additions have been made to the chapter on "Follicular Disease of the Œsophagus," and on the subject of the treatment of Pseudo-membranous Laryngitis by topical medication.

In the first edition of this work, I accorded to MM. Trousseau and Belloc the honor, which they had themselves claimed, of being "the first to prescribe and employ topical medications in chronic diseases of the larynx."*

* In the introduction of this work it is stated that Trousseau and Belloc's book was translated and published in this country in 1841. I was led into this mistake by referring, when I wrote the introduction, to the title page of the only translation I ever saw of the work, which purports to be published by "Carey & Hart, 1841"; and also by finding it stated, in Prof. Lee's review of the same work, in vol. IV. of the New York Journal of Medicine,

Soon after the publication of my work, my friend, Professor Gibson, of Philadelphia, put into my hands the "Surgical Observations," &c., of Charles Bell,—a work published in London, in 1816, but which I had not before seen. In this volume cases are recorded, in which the topical method of treatment was successfully employed, by Sir Charles Bell, more than thirty years ago. In one instance, noticed in this work, a young woman was brought into the hospital with extensive ulcerations of the glottis, which had followed long-continued inflammation of the throat. Mr. Bell being sent for, late at night, by the hospital attendants, found her sitting up in bed, breathing with a "harsh, sawing sound," and with much difficulty; she spoke with great effort, and in a whisper scarcely audible, and appeared, indeed, in imminent danger of suffocation. On attempting to swallow a little broth, "much of it went into the wind-pipe, and she had a great struggle in recovering."

"Having ascertained," continues Mr. Bell, "by putting my finger over the root of the tongue into the glottis, that it was rough and irregular with ulceration, I proposed to touch the surface with the *argentum nitratum*. It was considered hazardous, but something was necessary, and I was confident that the application would allay irritation. I made a small pad of lint, and attached it to the ring of a catheter wire, and bent the wire so as to pass over the root of the tongue and epiglottis; I dipped the lint in a solution of twenty grains of the caustic to half an ounce of water, and touched the glottis with it in this manner. With the fingers of my left hand I pressed down the tongue, and stretched the forefinger over the epiglottis; then, directing the wire along my finger, I removed the point of the finger from the glottis, and introduced the pad of lint into the opening, and pressed it with my finger. On withdrawing the lint, instead of coughing, she began to speak more audibly than usual, and had neither cough nor spasm from this rough operation. I

that the labors of Trousseau and Belloc were "republished in English, in this country, in 1841." On later examination I find it was first translated by Dr. Warder, of Cincinnati, in 1839.

repeated the application four times, and her breathing was sensibly better when I left her."*

These applications of the caustic were continued by Mr. Bell, at intervals, for many days, and were effectual, ultimately, in restoring his patient to health.

In conclusion, I cannot omit to express the high gratification I have experienced from witnessing the unexpectedly favorable reception of this work, and the adoption of the plan of treatment herein advocated, not only among the most able and distinguished portion of the profession in my own country, but by the highest medical authorities in Europe.

To be able to contribute something to the improvement of practical medicine, has ever been my ardent wish; and if my labors have been, in any degree, serviceable to my Professional brethren, my highest ambition is gratified.

12 Clinton Place,
New York, December, 1848.

* Surgical Observations; being a Quarterly Report of Cases in Surgery; by Charles Bell: London, 1816, page 34.

INTRODUCTION.

More than six years ago, namely, in September, 1840, I brought before the New York Medical and Surgical Society, —as may be seen by a reference to the Recorded Proceedings of the Society,—the subject of the treatment of disease of the larynx, by means of the direct application of therapeutical agents to the lining membrane of that cavity. I then exhibited instruments, by means of which, topical remedies were applied to the larynx; and reported fifteen cases of laryngeal and bronchial disease,—which had come under my care during the two years preceding the above period,—in which permanent cures had been effected, by this mode of treatment. Such, however, was the degree of skepticism, on this subject manifested at the time, by a large proportion of the members, that, for many years, I refrained from bringing the matter again before the Society. But, in the mean time, large numbers of patients, who were sufferers from laryngeal and bronchial disease, came under my care, and were treated by this method, with an amount of success, that was in the highest degree satisfactory.

At length, the subject was again presented to the Society by some of its members, who had, themselves, succeeded in applying remedial agents to the mucous membrane of the laryngeal cavity. But, as doubts still existed in the minds of a majority of the members, on the subject, a Committee was appointed to inquire more fully, "into the practicability of making these topical applications to the surfaces of the larynx." This committee; after devoting much time to the

investigation of the subject, reported in favour of the entire practicability of the operation; while, one of their number, detailed several interesting cases of laryngeal disease, which, in his own hands, had been successfully treated by the immediate application of remedies, below the epiglottis.

But, whilst, along with this committee, large numbers of medical men,—comprising some of the most intelligent gentlemen of this city, and of other cities, and States, have, at different times, been present, and have witnessed the introduction of a strong solution of the crystals of nitrate of silver, into the cavity of the larynx, I am not ignorant, that there are others, who,—judging from analogy and the experience of the past,—entertain the same opinion that was originally entertained, by the committee, as well as by almost every other member of the profession; namely,—that it is altogether impossible to enter the glottis in this manner.

The well known fact of the great irritation, produced upon an individual, by the accidental introduction of a morsel of food, or a drop of tea, or of any other fluid below the epiglottis, is always adduced as an unanswerable argument, against the practicability of introducing strong medicinal agents, into the laryngeal cavity. But this plan of reasoning from analogy, is one not applicable in this case; —for, it is a singular, but most interesting fact,—one that has been fully established by repeated experiments,—that the introduction into the glottis, of a sponge saturated with a solution of crystals of the nitrate of silver; of the strength of forty, fifty, or even of sixty grains of the salt, to the ounce of water, does not produce, ordinarily, as much disturbance, as the accidental imbibition into this cavity, of a few drops of tea, or even of pure water.

With all proper deference, therefore, to the opinions, in ordinary, of those medical gentlemen, who may still deny that the operation is practicable, I beg to remark: that

mere *opinions* in medicine, however extensive the experience, on other subjects, of those by whom they are entertained, cannot be received at the present day, in opposition to *facts* in medicine. Wherein, consists this impossibility of entering, *intentionally*, a tube, or cavity, which has been in so many known instances entered *accidentally*. The epiglottis, or valve to this opening,—except at the moment of deglutition,—is always, by virtue of its own elasticity, retained in a vertical position; what can hinder, then, I would ask those of the profession, who are so confident in their opinion on this subject,—what can prevent an instrument, of a proper relative size, from passing the opening of the glottis? Have the bits of coin, and other foreign bodies, which accident has introduced into the larynx, in innumerable instances, have these been hindered? Or, has the elastic tube, which has found its way into the cavity of the larynx a thousand recorded times, has this been prevented from passing through the rima glottidis, even into the trachea itself? Let us inquire what others, who speak from authority, have to say on this subject. Mr. Ryland, in a work on "Diseases and Injuries of the Larynx and Trachea," under the head of the Operation of Bronchotomy, remarks:—"The substitution of an elastic tube, passed into the trachea, for the operation of bronchotomy," to remedy suffocation arising from certain causes, was first proposed by Dessault, and by him, insisted upon, with great pertinacity. "The idea of the aperture of the glottis being closed by the abasement of the epiglottis upon it," continues Mr. Ryland, "has long been exploded, and it is now well known that a tube, passed in the manner just indicated, will, if directed by a scientific hand, *readily find its way into the trachea.* In these cases, there is no irritability, no convulsive spasm, caused by the contact of the tube with a highly sensitive glottis, and the insufflation of

air can be managed as well through a pipe introduced in this manner, as through one passed into an opening in front of the air-passages."*

In the Chirurgical Relations of the Oriental army, several cases are given, where soldiers, having lost the whole or a part of the epiglottis, by the passage of a bullet, were sustained by Baron Larrey, by passing an elastic tube into the œsophagus, through which, liquid nourishment was conveyed into the stomach. In one case, the entire epiglottis was cut off by a bullet, and afterwards spit out. The entrance of the larynx being thus exposed, no liquid of any kind, could be swallowed without inducing a convulsive and suffocating cough. This state continued some days before Baron Larrey saw the patient. He immediately passed a tube into the œsophagus, and administered some nourishment. The passage of the tube was not always executed with the same facility; as, in some instances, it is stated, it went into the larynx, instead of the œsophagus; and when this happened, the mistake was not discovered by any particular sensation about the glottis.† Dr. A. H. Stevens, of this city, has also assured me, that in attemping to introduce the tube of the stomach pump, it has frequently passed, accidentally into the larynx, without exciting any marked irritation. And yet there are those, who having neither made the attempt themselves, nor having seen it attempted by others, assert, in the face of all these facts, that the introduction into the larynx, of an instrument, formed for the purpose, and guided by a hand endeavouring to effect the passage, "is altogether impossible!" But I can assure the profession that it is an operation, which, in the treatment of laryngeal diseases, I have been in the practice of performing every day, for several years; and it

* Treatise on the Diseases and Injuries of the Larynx and Trachea, p. 317

† Relation Chirurg. de l'Armée d'Orient.

has been witnessed, and admitted, by a large number of well-informed medical gentlemen, who, from time to time, have been present, and who have themselves, many of them, adopted, successfully, the practice of treating chronic inflammation of the larynx, with topical medication.

Before closing these introductory remarks, I wish to correct one wrong impression, in order to give credit where it is due.

It has been frequently stated by members of the profession, and in some of the medical journals, that, in applying topical remedies to the laryngeal cavity, I have done so, after the manner of MM. Trousseau and Belloc. While I claim no credit for having originated the practice, myself; I, on the other hand, give these authors none, for having, so far as I am concerned, suggested it; for, I had been in the practice of cauterizing the larynx, nearly two years, before I had even heard of Trousseau and Belloc.

Their work was translated and published in this country, in 1841. In 1838, when in London, I had a conversation with Dr. Johnson, the late editor of the Medico-Chirurgical Review, on the subject of the treatment of chronic laryngeal disease.

He spoke of the frequent occurrence of the affection among the members of Parliament, the clergy, and other public speakers, and alluded to the difficulty of treating the disease successfully, after the ordinary method,—from the fact, that the affection, after having extended into the laryngeal cavity, was beyond the reach of gargles, and other topical remedies, as ordinarily employed; and the suggestion was made, that if proper applications could be applied below the epiglottis, no difficulty would occur in treating successfully the disease. Acting upon this suggestion, after my return home, I made the attempt, and was successful, in entering the larynx; and thereby, succeeded in

curing a well marked, and severe case of laryngeal disease. With the like success, other cases were treated, in the same year; and the appearance of the work of Trousseau and Belloc, soon after, confirmed my confidence in a method of treatment, which I have since pursued, and which I intend to follow, until a more excellent way shall have been discovered.

H. G.

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A TREATISE
ON THE
DISEASES OF THE AIR PASSAGES.

CHAPTER I.

Anatomy of the Larynx, Trachea, and Bronchi.

Before we enter upon the inquiry respecting those diseases which affect the organs of voice and respiration, it will be expedient to take a brief view of the anatomy and pathology of the parts which enter into the structure of these organs.

Familiar as their organization may be to the special anatomist, a definite knowledge of their structure, and of the organic changes to which they are liable, is not, always, clearly possessed by the general practitioner.

Commencing at the isthmus of the fauces, or the posterior boundary of the mouth, this description will include all those parts which, ordinarily, are involved in the diseases that are to be considered.

The *isthmus faucium*, or that opening by which the mouth communicates with the throat, or pharynx, is bounded above, by the palatine arch, from

which depends the *velum pendulum palati*, or the soft palate. The velum palati is a floating, membranous septum, which is attached to the margin of the palate bones, and which descends from thence, at the posterior border of the mouth, obliquely downwards and backwards, towards the base of the tongue. It is composed of a dense, cellular membrane, in which are numerous small glands; and of several muscles whose office is to stretch, or relax, this moveable septum. One of these muscles, the *azygus*, descending vertically from the posterior nasal process to the inferior border of the septum, on the median line, helps to form that conical prolongation, which is called the *uvula*. The whole is covered by a mucous membrane, which is a prolongation of the palatine membrane, and beneath which, numerous sub-cutaneous, mucous follicles are placed. These follicles are especially large and numerous, towards the inferior extremity of the uvula. Not unfrequently they become diseased, in affections of the throat, causing a chronic enlargement and elongation of the uvula, with a thickening of its mucous membrane, until, in some instances, this organ reaches the opening of the glottis, producing constant irritation on the base of the tongue, and at the top of the wind-pipe.

The use of the uvula and velum, it is supposed, is, by operating as a valve, to prevent the food, in the act of deglutition, from ascending into the posterior nares. Continuous with the velum palati,

at the lateral parts of the throat, there is, on each side of the posterior part of the roof of the mouth, a fleshy prominence, which, extending towards the base of the tongue, becomes bifurcated in its descent, and forms two vertical eminences, which are composed of folds of the mucous membrane, containing muscular fasciculi. These are called the *pillars of the fauces.* Occupying the angular space, formed by the intercolumniation of these pillars, are found the *amygdalæ*, or tonsillary glands.

These bodies are of an oval form, corresponding in size and shape, to an almond, from which they receive their name. They are composed, almost entirely, of a great number of mucous follicles, loosely bound together, or aggregated into a mass, and are surrounded by, or deposited in, cellular tissue. They are of a spongy nature and are exceedingly vascular, being largely supplied with blood from the pharyngeal, the palatine, and the labial arteries. Internally, they present several small sulci, or openings, which lead into follicles or cells, that are filled, generally, with mucous and a viscid humor. The tonsils are bounded, laterally, by the pillars of the soft palate; externally, they adhere to the surface of the *superior constrictor*, a thin muscle, by which they are separated from the internal carotids. When the tonsils are enlarged, they pass backwards far enough to touch these vessels; consequently, in the removal of the glands, which frequently becomes necessary, from their diseased and

enlarged condition, reference must be had to the anatomical relation of the parts, or the internal carotid may be wounded in the operation.

In affections of the throat the tonsils are, often the seat of morbid action. Infiltration, the formation of abscesses internally, and indolent enlargement of these glands, are of frequent occurrence. When the inflammation is severe, large abscesses may be formed in the centre of the glands, increasing their size, so as to render respiration difficult, and requiring a prompt operation to allow the pus to escape. Ordinarily, however, when the inflammation is concomitant with, or is the result of that peculiar affection of the throat which we are to consider, it is sub-acute in its character, progressing slowly, and involving, successively, one follicle after another, in the suppuration which follows. The matter thus formed, is discharged through the openings of the mucous follicles into the sulci, which are on the internal surface of the glands. As there is but little pain attendant upon this kind of inflammation, the disease may be going on for months, perhaps, without the individual being at all aware of the extent of the morbid action ; whilst the acrid matter, which oozes slowly, and, perhaps, unobserved from the affected glands, is irritating the surrounding parts, or it may be, is communicating disease to the adjacent follicles of the mucous membrane. In other instances the glands become indurated, and permanently enlarged ; requiring, fre-

quently, in both the above morbid conditions, the application of the caustic, or the knife, for their removal.

Situated between the palatal arch, or the posterior boundary of the mouth and the œsophagus, and lying immediately before the upper part of the vertebral column, is the *pharynx*. More properly speaking, the pharynx extends from the centre of the base of the cranium as far as the level of the fifth cervical vertebra, when it unites, or becomes continuous with the œsophagus.

The pharynx is a musculo-membranous canal; irregular in its diameter, being narrow at its superior portion, enlarging at its middle, and contracting again where it communicates with the œsophagus. At the upper and anterior portion of the pharynx we have the nasal fossæ, opening from above, downwards, into this canal; and at its external and superior part are the mouths of the Eustachian tubes; the latter forming a communication between the posterior fauces and the cavity of the tympanum. The mucous membrane which lines these canals, and the nasal fossæ, is continuous with that which covers the pharynx. That portion which covers the latter is highly vascular; its follicles are large and abundant, particularly at its superior portion. Beneath this membrane is placed the muscular layer of the pharynx. It is composed of the fibres of five or six small muscles, by which it is connected to the vertebral column posteriorly, and lat-

erally to the internal carotids. In long-continued disease of the throat, these muscles become atrophied, or are wasted away, thereby greatly enlarging the posterior fauces and the superior portion of the pharynx. This change in the dimensions of the cavity of the upper part of the throat, tends greatly to weaken the voice, which, in some instances, where the disease has involved the vocal cords in its progress, becomes quite extinguished.

The *œsophagus* is a continuation of the pharyngeal tube; being extended from the latter downwards, between the vertebral column and the trachea, to the stomach. Like the pharynx, it consists of a muscular or external coat, and a mucous lining. The mucous membrane is continuous, superiorly, with that of the pharynx and mouth, inferiorly, with that of the stomach; it is separated from the muscular by a cellular structure, and is marked by several longitudinal folds, which disappear when the tube is distended. This membrane of the œsophagus is thick and firm, and its internal surface is perforated by the ducts of the mucous glands, which are situated, at intervals, beneath it.

The Larnyx.—We now come to the consideration of those parts which more properly belong to the respiratory apparatus, and which are, therefore, in a pathological point of view, eminently important.

Highly complicated in its structure, and differing, essentially, from most other organs of the body—in

that it performs two of the most important functions of the animal economy—the *larynx* becomes to the anatomist and physiologist, whether viewed in its healthy or morbid condition, an object of the highest interest.

The larynx is a cartilaginous tube, which is placed at the top of the wind-pipe. Through it is transmitted the air, in its passage to and from the lungs; and within its cavity is placed that delicate and intricate structure, which forms and modulates the vocal sounds. It commences at the base of the tongue, where it is attached to the os-hyoides, and passing down, directly in front of the pharynx, it is connected, by a membranous union, to the first ring of the trachea. To afford protection to the delicate, vocal organs, the larynx has a frame-work composed of several strong cartilages. Of these, the most prominent, is the *thyroid cartilage*, which forms the upper and anterior part of the larynx. It is composed of two lateral plates, which, uniting on the median line, at the upper part of the neck, form that prominent angle, to which the name of Pomum Adami has been given. Below the thyroid, and forming the inferior boundary of the larynx, is the *cricoid cartilage*. It is of an annular form, irregular in its shape, being much broader behind than it is in front; and it is so connected with the thyroid cartilage, that a triangular space is formed, in front, between the two cartilages, which space is occupied by the

crico-thyroid membrane. It is at this point, that the operation for laryngotomy is commonly performed.

The *arytenoid cartilages* are two small bodies, of a triangular shape. They are situated above the cricoid cartilage, at the upper and back part of the larynx. They are narrow above, and broad at their lower extremities; and when connected together, the two cartilages present the form of the mouth of a pitcher, whence they are named. The opening between the lips of these two cartilages, is called the superior orifice of the larynx, or the aperture of the glottis. Over it is placed a fibro-cartilaginous valve, to which the name of *epiglottis* is given. This cartilage is of an ovoid form, and of a tissue very elastic. It is placed immediately below the base of the tongue, and above the entrance of the larynx, whose aperture it closes, completely; guarding it, like a valve, against the ingress of food, during the act of deglutition, and directing the morsel, at the same time, towards the œsophagus. The upper, and larger extremity of this oval body, is free; the smaller, or inferior one, is somewhat elongated, and is attached, by ligamentous fibres, to a notch, in the anterior face of the thyroid cartilage. By its natural elasticity, it preserves, ordinarily, nearly a vertical position; and its broad margin may often be seen, elevated above and overlooking the base of the tongue.

Within the larynx are parts essential to the

formation of the voice, which are, frequently, seriously affected, in diseases of the air passages. Extending from the arytenoid, to the angle of the thyroid cartilage, are two remarkable ligamentous cords, placed one beneath the other, which are called the *chordæ vocales*, or vocal ligaments. The superior cords are semilunar in shape, and consist merely of a duplicature of the lining membrane. The inferior pair are more strongly marked than the others. They are formed of highly elastic and parallel fibres, enveloped in a fold of the lining membrane of the larynx. They are about two lines in breadth, and from half to three quarters of an inch in length; and they are rendered more or less tense, by the action of the small muscles with which they are connected. These ligaments bound a triangular interval, called the *rima glottidis;* and from their connection with the special function of the larynx, are called the proper chordæ vocales. Just above the vocal ligaments, on either side, a cavity of an oval shape is formed, which is called the sinus, or ventricle of the larynx. These cavities, with the vocal ligaments, perform an important part in the formation of the voice. The mucous membrane which lines the interior of the larynx, is continuous with that which has been described as covering the pharynx above, and with the lining membrane of the trachea below.

There are some peculiarities in the arrangement of the mucous membrane of the larynx, worthy of

remark. It is known that, to the mucous membranes belong but a limited degree of extensibility; and, yet, they are often found lining cavities; as the stomach and the intestines, for example, whose ordinary dimensions are subject to frequent enlargement. This difficulty; namely, a want of elasticity in the mucous membrane, is obviated by this tissue being laid in innumerable folds, or wrinkles, in these cavities. But in the larynx, whose calibre is likewise undergoing constant change in its dimensions, this disposition of the lining membrane would doubtless interfere, seriously, with the smoothness of the voice. Here the difficulty is met by another arrangement. As the mucous membrane is reflected from the base of the tongue, to the anterior or lingual surface of the epiglottis, it forms, upon its front and outer part, three distinct folds, by which a free motion to the epiglottis is allowed; such as a perfect exercise of its functions requires. The membrane then passes downwards, adhering closely to, and lining smoothly, the interior, or laryngeal face of the epiglottis and the cricoid cartilage. When it reaches the ventricles of the larynx, it adheres loosely to these cavities, but over the vocal ligaments it is thin and adherent; thus presenting a smooth surface, whilst it allows freedom of motion in the expansion and contraction of these important parts of the vocal apparatus.

The larynx is supplied, abundantly, with mu-

cous follicles. They are most numerous at the root of the epiglottis, where their ducts are seen opening upon its laryngeal surface. They abound, likewise, in the mucous membrane, which passes from the arytenoid cartilages to the sides of the epiglottis, and in that part, also, which covers the cricoid cartilage.

The nerves of the larynx are the inferior and superior laryngeal nerves—branches of the eighth pair, or par vagum. A branch, also, from the cervical ganglia of the sympathetic nerve is sent to the larynx. The inferior laryngeal is the motor nerve of the larynx, whilst the superior laryngeal is the excitor, or nerve of sensation. Nearly all the muscles of the larynx—both those which open and those which close its apertures—receive filaments from these nerves. The inferior laryngeal awakens the muscles into action ; whilst the office of the superior is to convey sensation to the medulla oblongata.

At the inferior margin of the cricoid cartilage, immediately below the larynx, commences the *trachea*. It is a fibro-cartilaginous tube, about five inches in length, situated before the œsophagus, and, like the larynx, is placed exactly over the median line of the neck. The trachea is composed of several incomplete cartilaginous rings, arranged one above the other, and connected together by a highly elastic fibrous tissue. These rings form about two thirds of a circle ; surrounding only the

anterior and lateral parts of the tube, whilst the open space in the rings, posteriorly, is occupied by a membrane, composed of thin bands of muscular fibres.

As the trachea descends into the thorax, it bifurcates just opposite the third dorsal vertebra, sending one of the two branches, which here take the name of bronchi, into each of the lungs. The bronchi, as they penetrate the lungs, divide and sub-divide, very minutely, and transmit their ramifications into every part of the pulmonary tissue.

Thus formed, the wind-pipe has been compared, not inaptly, to an inverted hollow tree.* The larynx and trachea, representing the trunk and the bronchi and their innumerable sub-divisions, the branches and twigs of the pulmonary tree.

The mucous membrane of the trachea is a continuation of the lining membrane of the larynx. It is thin and vascular in the trachea, adhering closely to the sub-mucous tissue of this tube, and lining not only the minute branches of the bronchi, but extending into the air cells of the lungs.

The mucous follicles of the trachea are still more abundant than those of the larynx. They pour their secretion upon the mucous membrane of this tube. Near the bifurcation of the trachea, and around the roots of the bronchi, are found a great number of dark-coloured, lymphatic glands. They are larger in size than the mucous follicles, and

* Meckel.

they are called the bronchial glands. Their functions are unknown.

The striking analogy which exists between the mucous membranes and the skin, has long been known. They are continuous with each other, and, although differing in their functions, the same structural elements enter into the formation of both. Instead of the dry epidermis of the skin, the surface of the mucous membranes is covered with a soft and moist kind of cuticle, to which the name of *epithelium* has been given.

There are various forms in which this covering of the mucous membranes is presented. The two principal and most common forms, however, are the *tesselate*, or pavement-epithelium, and the *cylinder*-epithelium. The tesselated epithelia are composed of flattened cells of a peculiar form, arranged in layers, one above the other; in many instances, however, the mucous membrane will be found to be covered by a single stratum only. The cells of cylinder epithelia, as the name indicates, have the form of conoid cylinders, resting side by side upon the mucous membrane. Their free extremities are sometimes fringed with minute hair-like filaments, to which the name of *cilia* has been given. It is this latter form—the ciliated epithelium—which is found lining the fauces, the posterior surface of the pendulous velum of the palate, the larynx, the trachea, and extending through the bronchi and all their sub-divisions.

During life, and for some time after death, the cilia which are attached to the edges of the epithelial cells, are in a state of continual vibration, and, as their motions are directed towards the outlets of the cavities which they line, their function, it is supposed, is to propel the accumulated secretions towards the exterior orifices, from which they may be removed.*

In diseases of the mucous membrane, the epithelia are easily removed, but they possess the power of reproduction to an unlimited extent, and when detached from the mucous surfaces by disease, or any other cause, they are most readily renewed.

* See Prin. of Human Phys. by Dr. Carpenter, p. 504.

CHAPTER II.

Physiology of the Mucous Follicles.

Allusion has been made already to a part of the glandular follicles which are found scattered along that portion of the mucous membrane which lines the fauces, pharynx, and air passages. The important influence which they exert in the diseases of these passages, renders necessary a farther inquiry into their history and the phenomena which they present. In order more fully to understand the nature and functions of the follicles occupying the mucous surface of the above passages, it may be well, first, briefly to trace the history of those which occupy the lining membrane of other parts. Nearly all the membranes lining the internal cavities, are supplied with numerous glandulæ, which secrete the mucus that covers their surfaces. They differ, however, essentially in their structure, and, in some instances, in the secretions which they elaborate. In some cases, the secreting glands consist merely of numerous slight depressions of the mucous membrane, or small sacs, with narrow necks; in others, again, they are composed of minute tubes arranged perpendicularly to the surface, with their closed extremities resting upon the sub-mucous

tissue, and their opposite ends opening upon the face of the mucous membrane. These are the most simple, and, indeed, are the elementary forms of all glandular follicles. Of the former kind, are the follicules of Lieberkuhn, which are numerous clusters of minute depressions, covering almost the entire surface of the mucous membrane of the *small intestines;* and to the latter class belong the tube-like follicles first described by Dr. Boehm, and which are equally numerous in the mucous membrane of the *large intestine.* Besides these simple forms of *crypts*, or follicles, there are numerous other modifications of structure in the glandulæ of the mucous membranes; some of which are highly complicated—the interior of the follicle being composed of both sacs and tubuli, bound together by a most delicate cellular tissue. But, whether simple or compound, or however various in their conformation the substance of glands may be, Nature has arranged them, in all cases, apparently for the purpose of gaining the largest extent of secreting surface; no one kind of conformation, moreover, is peculiar to one gland. In some instances their substance consists of a mass of oval sacs or cells, having no excretory opening, but being completely closed, and, apparently, unconnected with the secreting action of the membrane. Of the latter, according to Henle,* are the mucous follicles of the lips, cheeks, etc. Clusters of these

* Elements of Physiology, by J. Müller, M. D. vol. 1, p. 479.

oval-shaped cells, of different sizes, containing, some of them, glandular matter, and others, globules of mucus, but all being hermetically sealed, may be found attached to a branch of the excretory duct. But as there is no opening communicating with the duct, it is supposed by Henle, Baly, and other physiologists, that the contents of the cells are, from time to time, discharged into the excretory opening, in consequence, either of the membrane of the cells bursting, or of its becoming dissolved at the part where it is connected with the duct.

Besides the simple tubuli of Lieberkuhn, which are found occupying almost the entire extent of the lining membranes of the small intestines, there are the *glandulæ agminatæ*, or glands of Peyer, aggregated together, in large patches, along the mucous membrane of the small intestine, opposite the insertion of the mesentery. These glands, like the follicles of the lips and mouth, possess no excretory opening. The clusters are small closed sacs, each about a line in diameter; and they are surrounded by a zone of small openings, like the foramina of Lieberkuhn, but which do not penetrate the walls of the sac. The contents of these saculi is a greyish white mucus, which is not discharged until the delicate membrane that closes the cavities, and which is very liable to ulceration, is destroyed by disease. Thus it is that the so-called glands of Peyer become open cells, or follicles, and in this

state are they found after that inflammation of the membrane, which is the frequent concomitant of certain febrile and other diseases.

In the glandulæ of the mucous membrane of the stomach, a structure still more difficult and complex is presented. On examining the interior of a healthy stomach, numerous small depressions or cells, of a regular and nearly an oval form, may be observed upon its mucous surface. The floor of each of these cells is perforated by several minute openings, which are the mouths of secreting tubes. These latter are not simple tubuli, but they assume towards their inferior extremities a saculated structure; that is, each of these secreting organs is composed of numerous cellular dilatations, all attached to one common tube, and this tube penetrates the floor of the superficial cell in the manner described. It is this secreting apparatus which elaborates the gastric fluid. By recent microscopic investigations, it has been ascertained that the mouths of these tubuli remain closed when the stomach is empty, and that it is only during the period of digestion that the peculiar fluid which they elaborate is secreted. This accords with the experience of Dr. Beaumont, who observed, in the case of Alexis St. Martin, that the gastric fluid never appeared to accumulate in the cavity of the stomach whilst the patient was fasting.*

* See the case of St. Martin, with the observations and experiments of Dr. Beaumont.

Situated in the duodenum is a layer of glandular bodies, differing, entirely, from those already described, and, indeed, unlike all the other glandulæ of the alimentary canal. These are the glands of *Brunner;* so called from having been first properly described by the physiologist of that name. They are not found in the lining membrane, but are situated in the sub-mucous tissue, and are sufficiently numerous to form a continuous layer, which surrounds the whole intestine. These glands are small solid bodies in their healthy state, not exceeding in size that of a hemp-seed; yet they are composed of numerous minute *acini*, or lobules, of which about six hundred are computed to exist in each gland.* Their ducts unite in one common excretory tube, which, penetrating the mucous membrane, opens upon its interior surface. It has been ascertained by Dr. Boehm, that the glands of Brunner exist, only in the duodenum; beneath the mucous coat of which they are exceedingly numerous. It is in the duodenum that the *chyme*, after the digestive process in the stomach is completed, is mingled with the bile and the pancreatic fluid. An immediate alteration, both in its sensible and chemical properties, is effected in the chyme by this admixture. The abundant secretion furnished by the glands of the duodenum, must have an important influence in effecting this change. Of the

* Principles of Human Phys. by Wm. B. Carpenter, M.D. p. 537

peculiar nature of their secretion, however, nothing is known.

Embraced in the above description, are the principal glandular bodies, which are found in the mucous membrane, lining the alimentary canal. The follicles which are scattered along the lining membrane of the fauces, pharynx, and air passages, include such as are both simple and compound, in their conformation. The mucous follicles of the *lips and mouth* are simple closed cells, resembling the glandulæ agminatæ, in their having no excretory opening. In the mucous membrane, which unites the base of the tongue with the epiglottis, are clustered together several follicles, having their excretory ducts opening into a common dilated orifice, the *foramen cæcum*, situated at the back of the tongue. Placed near this opening, are the *lenticular papillæ* of the tongue; they consist of twelve or fifteen large mucous follicles, of a conoid shape, disposed in two lines, which converge to an angle just before the foramen cæcum. The *amygdalæ, or tonsils*, seem to be composed, entirely, of an aggregated mass of follicles, enveloped in folds of the mucous membrane. On the internal and convex surface of these bodies, are seen a large number of deep and irregular sulci, or depressions. The walls of these cavities are lined by mucous membrane, whose surface presents numerous small apertures, which lead into follicles, or cells, that secrete the

mucous and viscid fluid with which the cavities are generally filled.

The *glands of the pharynx* are large and abundant; they are of an ovoid form, and are situated beneath the mucous membrane, but are not imbedded in the sub-mucous tissue, as are those of the œsophagus and trachea. These glands are particularly numerous around the posterior nares, and under the cervical portion of the pharyngeal membrane; two of them, more complicated in their structure, being lobulated and of larger size than the rest, are situated at the margin of the opening of the Eustachian tube.

The *follicles of the Uvula* are also large, and they are particularly numerous around the inferior extremity of this organ.

The *œsophageal glands*, like those of Brunner, which have been described, are imbedded in the sub-mucous tissue of the œsophagus; they are composed of small lobulated bodies, or cells,—several of them having their excretory ducts united in one common tube, which opens upon the surface of the œsophageal membrane. The tubuli of these follicles pass obliquely through the mucous membrane in such a manner that substances that are swallowed do not find ingress to their cavities.

In the *larynx* the mucous follicles are very numerous in that part of the lining membrane which occupies the upper part of this organ. On its

surface may be seen the openings of some sixty or seventy excretory tubes, which pass into follicular cells, situated in the sub-mucous tissue. Placed in the substance of the epiglottis are numerous other glandulæ, which have their openings on the laryngeal surface of this structure; one of these, consisting of several granules, is imbedded in a mass of fat, which is located between the epiglottis and the os hyoides; from it, ducts pass backwards, through foramina in the epiglottis, to open upon the posterior, or laryngeal surface of this cartilage; from its connection with this body it is named the *epiglotic gland.*

Other glands are placed in the thickness of the superior vocal cords, within the ventricles of the larynx, and in the folds of the mucous membrane, in front of the arytenoid cartilage. The secretion from the laryngeal follicles is intended for the lubrication of the vocal ligaments, and it is directed upon them by small valvular folds of the mucous membrane, which are arranged in such a manner as to effect this object.

The follicles of the trachea are still more numerous than those of the larynx; they are small, flattened, ovoid cells, situated between the fibrous and muscular layers of the membranous portion of the trachea, and, in some places, beneath the muscular fibres; so that their excretory ducts have to penetrate not only the muscular layer, but the mu-

cous membrane, in order to open upon its interior surface.

In their normal condition, the fluid secreted by the mucous follicles of the air passages is bland and transparent, and not abundant in quantity ; but disease, as we shall find, greatly increases and vitiates their secretion.

CHAPTER III.

Pathology of the Throat, Larynx, and Bronchi.

The physiological and pathalogical relations which exist between the throat and the respiratory tubes, are not justly regarded by medical writers in discussing the nature of those diseases which affect these different parts.

Affections of the throat are, ordinarily, arranged by nosologists, in connection with those of the œsophagus; or, are treated independently of those diseases which occur in the larynx, trachea, and bronchi.

Pathologically considered, the relation which exists between the fauces, tonsils, and pharynx, on the one hand, and the respiratory tubes on the other, is much more intimate and important, than the connection which exists between the throat and the œsophagus.

In almost all the inflammatory affections of the air-passages, whether primary or consecutive, the diseased action has its origin in the fauces and pharynx, and extends, by continuity, from thence to the respiratory tubes; whilst the membrane lining the œsophagus, may escape inflammatory action altogether, or become but partially implicated.

These pathological relations, therefore, and the community of symptoms, will be kept in view, in examining into the nature of those lesions which affect these organs.

The exact, pathological conditions, which exist in the throat and the air-passages, in diseases of these parts, have been, until recently, but imperfectly understood. Indeed, at the present day, several affections of the larynx and trachea are confounded by different writers, or their origin assigned to morbid conditions which do not exist; whilst, on the other hand, accumulated pathological facts show, conclusively, that there are other affections of the air-passages, whose characteristics and morbid relations are still involved in obscurity.

To point out the seat and nature of one of these affections; to investigate its causes; and, from a knowledge of its true pathology, to establish correct principles of treatment, are among the objects of the present inquiry.

In order, however, to establish the proposition that there exists an abnormal condition of the throat, and the air-tubes, constituting a distinct species of disease, and which, hitherto, has been confounded by writers, and medical practitioners, with other disorders of these parts, under the names of "Bronchitis," "Chronic Laryngitis," &c., it will be necessary, in the first place, to glance, briefly, at the principal pathological condi-

tions upon which these, and other known disorders of the respiratory apparatus are supposed to depend.

Structural changes consequent on superficial inflammation of the mucous membrane of the throat.

It is well known, that the mucous membrane, which is found lining the throat and air-passages, is, in its healthy state, of a slightly red, or pale rose-colour. In disease, it becomes changed, passing from the naturally healthy hue, into a deep scarlet, and ultimately, becoming purple, or violet, according to the form, and intensity of the inflammation.

Subjected to the influence of acute, inflammatory action, the mucous tissue presents a red, or violet colour, which is nearly equally diffused over its whole surface; but in all the chronic forms of the disease, we find the inflammation appearing in irregular, circumscribed patches. These patches present highly coloured centres, which become paler, towards their circumferences, gradually fading away into the natural colour of the healthy membrane.*

Of the minor forms of morbid action, which affect the throat, there are several varieties. In one, the membrane which lines the fauces, tonsils, and pharynx, is seen to present a bright red appearance, accompanied with tumefaction, and followed by a free discharge of mucous upon its surface.

* Gendrin, Hist. Anat. des Inflam.

In another variety, the membrane appears tense, and highly inflamed. The capillary vessels, which before the occurrence of inflammation, were imperceptible, become distinctly visible, while the surface of the membrane, which in the preceding variety pours out a free discharge of mucus, remains dry and glossy.

There is yet another morbid condition of the throat, consequent upon inflammation of the mucous tissue, differing essentially from the foregoing varieties. In this form, the inflammation is subacute in its character. The investing membrane is relaxed, pale, and œdematous; infiltrations of serous fluid take place beneath the Epithelium, or into the substance of the subjacent parts. But in all these varieties of superficial inflammation of the throat, which are, ordinarily, caused by vicissitudes of temperature, and the presence of cold and humidity, the apparent tumefaction, and œdema of the mucous tissue, are dependent upon the serous infiltrations which occur beneath the membrane, and not upon an actual hypertrophy of the membrane itself.

Structural changes consequent on plastic inflammation of the lining membrane of the air-passages.

Among the severer forms of disease, there is one condition of the mucous membrane, the result of inflammation, which is distinguished from all other pathological conditions, of these parts, by the pecu-

liarity of the discharge that covers the surface of the inflamed tissue. This consists of an albuminous exudation; amounting in some instances to coagulable lymph, which invests the parts that are subjected to this form of inflammation, with a dense adventitious membrane. This modification of disease, in the mucous tissue, appears in two forms.

1. In one variety, the inflammation, invariably, commences in the fauces and pharynx. On examining the throat, a deep redness of the tonsils and velum, will be observed, with white, or ash-coloured patches of albuminous concretion, covering the surface of the inflamed membrane.

In some cases, these pellicles appear separate, and distinct; in others, they coalesce, and coat, with one uniform crust, the entire secreting surface, of the mucous tissue. In the early stage of the disease, they resemble superficial sloughs, are easily detached, and when removed, the sub-jacent membrane is seen to be of a vivid red, without ulceration, but deprived of its Epithelium. The redness of the membrane is greatly augmented, after the removal of the crusts; the albuminous concretion is increased, and the mucous surface is again coated with an exudation, more dense and tenacious, than the first.

If the disease is unchecked, the inflammation, and the concrete exudation, may be extended into the larynx and the bronchial tubes. M. Bretton-neau has recorded several cases where a false

membrane was found lining the œsophagus, as far down as the cardiac extremity.* In other instances, it presents an unbroken tube, extending from the top of the pharynx, to the primary divisions of the bronchi.

Ordinarily, however, the affection is confined to the fauces, and pharynx; it is only in severe cases, that the membrane of the larynx and trachea, becomes involved in the disease. When the inflammation extends to the larynx, however, it proves rapidly fatal.

2. The second, and, beside the preceding, the only variety of inflammation of the mucous tissues, of the air-passages, whose product is an albuminous exudation, commences with catarrhal symptoms, and is confined, in its attacks, to children, and persons before the age of puberty; whilst the above form of disease, begins with pain, redness, and swelling of the tonsils, and back of the throat, generally; and attacks, moreover, individuals of all ages.

The early, morbid changes, which result from this second form of plastic inflammation, are not positively known; as the seat of the inflammation is not within view, as is that of the preceding variety, but is, generally, restricted to the tissues of the trachea, and larynx.

In those instances, in which an early inspection of these parts has been obtained, the mucous sur-

* M. Bretonneau, Traité de la Diphthérite.

face of the trachea, and, often, of the larynx and bronchi, appears reddened and tumid, and is covered with viscid mucus, having here and there, shreds, or patches, of concrete albumen. The lymph is, undoubtedly, poured out, at first in a liquid state, and, becoming concrete, afterwards forms an adventitious, tubular membrane, which extends, often from the tip of the epiglottis, to the bifurcation of the trachea, and entering, in some instances, into the ramifications of the bronchi, penetrates, even, the pulmonary vesicles at their termination. But, in most cases, this false membrane is found to be more concrete and firm in the trachea, than in any other portion of the respiratory tube; for, it is the tracheal membrane that constitutes the special seat of the inflammation. Here, the surface of the mucous tissue presents, often, a bright, vascular redness, and is seen coated, with a dense, firm, adventitious membrane; whilst, lower down in the trachea, and in the bronchi, the albuminous exudation is, generally, found in a semi-fluid state, and mixed with an abundant quantity of viscid mucus.

In addition to the preceding morbid alterations, which result from inflammation of the respiratory apparatus, there are other important lesions of these parts, which are the consequence of severe inflammation of the mucous membrane of the larynx, and epiglottis, and of the sub-mucous cel lular tissues of these organs.

In the preceding, severe form of diseased action, the tracheal membrane, let it be remarked, constitutes the essential seat of the inflammation, and the characteristic product is an albuminous exudation, and the formation of an adventitious membrane, without ulceration, upon the free surface of the mucous membrane; in the variety, which we are now considering, the mucous, and the sub-mucous tissues of the epiglottis, and of the rima of the glottis, are the portions of the respiratory tube, essentially implicated, in the attack of inflammation, and the result, is a thickening, and, often, an ulceration of the mucous membrane which lines the epiglottis, and the lips of the glottis, with a serous, or a sero-purulent infiltration, of the sub-mucous tissues of these parts.

The high state of inflammation of the epiglottis, and the consequent effusion of serum into this cartilage, renders it œdematous, and erect, by which it fails to cover and protect the opening of the larynx; and, the distension of the lips of the glottis, from the same cause, approximates their edges, and thus, at length, the passage into the trachea becomes nearly obliterated.

So rapid, indeed, in some instances, is the progress of this form of inflammation, and, so extensive the serous effusion into the cellular tissue, of the upper extremity of the wind-pipe, as to obstruct the entrance of air into the larynx, and prove destructive to life, in a very few hours after the com-

mencement of the disease. To the pathological condition which results from this form of inflammatory action, is attributed the cause of death, in the case of the illustrious Washington. But at the time of his death pathologists were wholly unacquainted with the true nature of the disease of which he died. At that period, and for a long time subsequent to it, this form of inflammation was confounded with that which we have just considered, which terminates in albuminous exudations; and thus it was that his disorder was improperly termed "Cynanche trachealis."

As the case of Gen. Washington is deeply interesting to every American reader, and is, moreover, acknowledged to be the "first accurately reported history of this form of inflammation which is to be found in the annals of medicine," and therefore of especial interest to the pathologist, I shall call attention to the history of it, as given by the intelligent physicians, who attended him, during his last illness.*

"On the night of Friday, the 10th December, 1799, having been exposed to rain on the preceding day, General Washington was attacked with an inflammatory affection of the upper part of the wind-pipe, called in technical language, Cynanche trachealis. The disease commenced with a violent ague, accompanied with some pain in the upper and fore part of the throat, a sense of stricture in the

* Drs. James Craik and Elisha E. Dick.

same part, a cough, and a difficult, rather than a painful deglutition, which were soon succeeded by a quick and laborious respiration.

"The necessity of blood-letting suggested itself to the General: he procured a bleeder in the neighbourhood, who took from his arm in the night, twelve or fourteen ounces of blood. He could not by any means be prevailed upon by the family to send for the attending physician till the following morning, who arrived at Mount Vernon at about eleven o'clock on Saturday. Discovering the case to be highly alarming, and foreseeing the fatal tendency of the disease, two consulting physicians were immediately sent for, who arrived, one at half-past three, and the other at four o'clock in the afternoon. In the meantime were employed two pretty copious bleedings, a blister was applied to the part affected, two moderate doses of calomel were given, and an injection was administered, which operated on the lower intestines, but all without any perceptible advantage, the respiration becoming still more difficult and distressing. Upon the arrival of the first of the consulting physicians, it was agreed, as there were yet no signs of accumulation in the bronchial vessels of the lungs, to try the result of another bleeding, when about thirty-two ounces of blood were drawn, without the smallest apparent alleviation of the disease. Vapours of vinegar and of water were frequently inhaled; ten grains of calomel were given, suc-

ceeded by repeated doses of emetic tartar, amounting in all to five or six grains, with no other effect than a copious discharge from the bowels. The powers of life seemed now manifestly yielding to the force of the disorder; blisters were applied to the extremities, together with a cataplasm of bran and vinegar to the throat. Speaking, which was painful, from the beginning, now became almost impracticable; respiration grew more and more contracted and imperfect, till half-after eleven on Saturday night, when, retaining the full possession of his intellect, he expired without a struggle.

He was fully impressed at the beginning of his complaint, as well as through every succeeding stage of it, that its conclusion would be mortal; submitting to the several exertions made for his recovery, rather as a duty, than from any expectation of their efficacy. He considered the operations of death upon his system as coeval with the disease; and several hours before his death, after repeated efforts to be understood, succeeded in expressing a desire that he might be permitted to die without farther interruption. During the short period of his illness, he economized his time, in the arrangement of such few concerns as required his attention, with the utmost serenity; and anticipated his approaching dissolution with every demonstration of that equanimity for which his whole life had been so uniformly conspicuous."

It has been stated that, the infiltrations into the

sub-mucous, or cellular tissues of the upper extremity of the wind-pipe, which are the sequent of this form of inflammation, and which characterize the disorder, are of a serous, or of a sero-purulent nature. When the disease falls in its full force upon the superior portion of the larynx, infiltration of the lips of the glottis, quickly supervenes, impeding the passage of air into the wind-pipe, and causing a rapid, and fatal termination of the complaint. In such cases, it has been observed by Ryland,* and other pathologists, that serum, only, is effused into the sub-mucous tissue of the aperture of the glottis. But where the progress of the affection has been less rapid, and the fatal termination has been for a few days delayed, the fluid, found within the meshes of the cellular structure, is, under these circumstances, of a sero-purulent nature, whilst the saculi laryngis are often found in these cases, bathed in pus. Ulceration of the mucous membrane, although rarely occurring among the lesions which result from the present form of inflammation, is, nevertheless, sometimes observed, in those instances which have not proved very rapidly fatal. Cruveilhier has recorded several cases of this nature ; in one of which, the whole internal surface of the larynx, was found covered with small, superficial ulcerations.†

* Treatise on the diseases and injuries of the Larynx and Trachea, by Fredk. Ryland, p. 34.

† Diction. de Medecine, &c. Art. Laryngite.

Ulcerations, however, both superficial and deep-seated, are more likely to occur among those

Organic lesions, which are consequent upon sub-acute inflammation of the superior portion of the respiratory tube.

Structural lesions of the upper extremity of the larynx, resulting from the above sub-acute form of inflammation, are more frequent, and much more numerous, than are those which follow an attack of the acute form of inflammatory action. The earliest, organic changes, that occur in these parts, consequent upon chronic inflammation of the tissues, are seldom observed, as the lesions are not, ordinarily, of a grade sufficiently serious, to effect a fatal termination, at this stage of the disorder. Increased vascularity of the mucous membrane, not generally diffused, but occurring in patches, is one of the earliest morbid changes, induced by this form of inflammation. Sooner or later, the morbid action continuing, this condition of the membrane is followed by a rough, irregular, and hardened state of the tissue ; and by an increase of thickness, of that portion of it, which lines the entrance of the glottis, and the laryngeal surface of the epiglottis. Infiltrations of the cellular tissue, of serous, purulent, and often of tuberculous matter, with ulcerations of the mucous, and the sub-mucous tissues, are the frequent concomitants, of sub-acute inflammation. The size and shape of these ulcers,

are greatly varied. In some instances, they are small, rounded, and superficial; in others, they are large, irregular, and deep-seated; penetrating, not unfrequently, the sub-mucous, and cellular tissues, and destroying, sometimes, even, portions of the cartilages themselves.

Ossification of the cartilages of the larynx, is another alteration of structure, of frequent occurrence in cases of chronic inflammation, of these parts. Under ordinary circumstances, the cartilages become ossified in an advanced period of life; but Trousseau and Belloc have demonstrated, that this condition, to which the tissues are naturally liable, in the course of time, is accelerated by the irritation of sub-acute inflammation, so that, ossification of these cartilages, in young persons, is of frequent occurrence, in protracted cases of this form of disease.*

Organic lesions consequent on inflammation of the bronchial mucous membrane.

The pathological changes, which result from inflammation of the lining membrane of the bronchial tubes, and of the pulmonary vesicles, are numerous, and important. Lesions of this membrane are consequent upon two forms of inflammatory action; the *acute*, and *chronic*. In the more intense, and extensive variety, the morbid action may not only extend through the bronchial tubes, but descend

* Chronic Laryngitis and Diseases of the Voice, by MM. Trousseau and Belloc, p. 21.

into the vesicular texture, and involve the whole, lining membrane of both lungs. The first change which presents itself, in this form of inflammatory action, is a tense, and highly inflamed condition of the bronchial, mucous surface. In the earliest stage, this tissue, throughout, is often found tumid, and dry. After a longer, or shorter period, the membrane begins to pour forth a glairy, transparent mucus, of extreme tenacity, which is combined with a frothy serum, and is marked, in some instances, with streaks of blood.* So abundant is this discharge of adhesive, frothy mucus, when the inflammatory action is unchecked, as to prove rapidly fatal, in some cases, by blocking up the bronchi, and their ramifications, with this morbid secretion. Under these circumstances, the lungs do not collapse, upon the admission of the atmosphere to their external surface; being prevented by the obstruction in the bronchial tubes.

The surface of the mucous membrane, in such instances, has been found to present a variety of shades, varying from a light crimson, to a deep, dark red, which either presents itself in patches, or is generally diffused over the whole surface, whilst the membrane itself, is considerably thickened, and is so softened, occasionally, that it may be easily abraded.

Organic lesions, occurring from a *chronic* form of inflammatory action, of the bronchial mucous mem-

* Watson on Acute Bronchitis, p 478.

brane, are much more frequent, than those consequent upon the preceding variety.

Resulting from this modification of diseased action, the most prominent, morbid changes, are alterations in colour, in the bronchial tissues, a thickening, and in some instances, an ulceration of the membrane, and a dilatation, or an enlargement of the bronchi, and of their ramifications; attended, from an early stage of the disease, with a mucous, and subsequently with an albuminous, a muco-purulent, or a puriform expectoration.

As in the preceding active form of disease, the mucous membrane of the air-passages is found, in this variety, to present various shades of colour. Generally, however, the tint is of a dark livid, or violet hue; but in some instances, when the morbid action has been long-continued, and has been attended with an abundant, *puriform* expectoration, the surface of the membrane is paler than usual—or is even perfectly white, throughout the whole extent of the bronchi and their ramifications.

A thickening of the mucous membrane, is a lesion of frequent occurrence, in chronic inflammation of the respiratory tubes. This organic change, may result from a serous infiltration, occurring beneath the mucous tissue, or from congestion, or œdema; or it may result from a permanent hypertrophy of the membrane itself. Ulceration of the bronchial, mucous membrane, consequent upon inflammation of this tissue, although sometimes pre-

sent, is of rare occurrence. This lesion, as the sequent of inflammation, is much more frequently observed in the larynx, than in the bronchial tubes.

But the most important lesion, resulting from the above form, of inflammatory action, is the dilatation of the air-tubes, and the consequent expansion, of their lining membrane. Pathologists have remarked several varieties, of this change of calibre, in the bronchial tubes. In one variety, several of the sub-divisions of a bronchus, may be found dilated, throughout their whole extent, so as to exceed in size, even the bronchus itself. This enlargement of calibre, may be confined to a few branches; or the ramifications of an entire lobe may be so continuously dilated, as to be, nearly, of an equal diameter throughout; and, when examined, to present the appearance of the fingers of a glove. Formerly, it was supposed that this dilatation of the bronchial branches, depended upon a simple distension of the walls of their lining membrane; but, modern pathology has demonstrated, that the bronchial parietes become thickened, and their circular fibres, actually hypertrophied, coëtaneously with their dilatation.

In another form of bronchial dilatation, the tube is not uniformly distended, but is enlarged at different intervals, so as to present a series of alternate expansions, and contractions; and in a third variety we may have a bronchial tube, dilated at its extremity, into one large globular expansion; whilst

its walls, instead of being hypertrophied, as in the preceding variety, are found wasted away, thin, and transparent.

The physical signs which accompany this last form of bronchial dilatation, are almost exactly those, which indicate the presence of a pulmonary abscess, and with difficulty are they distinguished from those of the latter lesion; especially, when the dilatation is accompanied—as is frequently the case—with a muco-purulent expectoration.

It is such cases of bronchial disease, that are frequently mistaken for pulmonary phthisis; for, not only are the physical, but the rational signs, which accompany the two diseases, strikingly similar; and thus it is, that many of those vaunted cases of *consumption*, for which cures have been claimed; instead of having been tubercular phthisis, have been, in reality, cases of bronchial dilatation, attended with puriform expectoration. By critical exploration, however, and by a comparison of the prominent indications, of the two affections, these different lesions, in most instances, may be distinguished. The physical signs which accompany dilatation of the bronchial tubes, although manifested by similar sounds, differ in their location from those consequent upon phthisis. In the former, the morbid sounds are, ordinarily, heard in the lower lobes of the lungs; but in the latter, they proceed from their upper portion.

CHAPTER IV.

Follicular Inflammation of the Throat and Air-passages.

The pathological conditions of the lining membranes of the air-passages, which now have been briefly examined, constitute the principal, morbid alterations, to which pathologists, hitherto, have ascribed the known, primary disorders of the respiratory tubes.

That there occur, often, in the tissues of these parts, other structural lesions which, frequently, are productive of important disease—lesions which, hitherto, have not been properly appreciated by pathologists, I shall now proceed to demonstrate.

In the foregoing pages, I have examined, to some extent, the structure and physiology of the numerous glandulæ, or mucous follicles, which are found scattered along the whole extent of the lining membrane of the respiratory tubes. These glandular bodies are, themselves, the primary seat of important, structural changes. That peculiar affection of the throat, which, under the appellations of "Bronchitis," "Chronic Laryngitis," "Clergymen's Sore Throat," etc. etc. has occurred, especially during the last ten, or fifteen years, so frequently, among public speakers and others,

consists, primarily and essentially; as I shall be able, I think, to demonstrate, *in a diseased condition, of the glandular follicles of the mucous membrane of the throat, larynx, and trachea.*

Commencing, generally, in the mucous follicles of the isthmus of the fauces, and of the upper portion of the pharyngeal membrane, the disease may be extended, until the glandulæ of the epiglottis, larynx, and trachea, and sometimes those of the œsophageal membrane, are extensively involved in the diseased action.

The structural changes, to which the mucous follicles of the throat and air-passages, are liable, are: *Inflammation*, which may result in *Ulceration, Hypertrophy, Induration,* or in a *Deposition of tuberculous matter in the follicles themselves;* attended, in most of these conditions, by a greatly increased, and vitiated, mucous secretion.

The disease of the mucous glandulæ may be *primary*, and *uncomplicated*, and be limited, entirely, to the fauces and pharyngo-laryngeal membrane; or, it may be *complicated* with *hypertrophy, and induration of the tonsils*, and with *elongation* of the *uvula*. It may accompany, or be consecutive to, other affections of the air-passages, and co-exist with *Laryngitis, Bronchitis,* or with *Pulmonary Phthisis.*

But, before adducing such facts and illustrations, as will be necessary, to establish any general, synthetical principles, regarding the nature of the

disease, it may not be uninteresting, to examine, briefly, its general history.

History of Follicular Disease of the Throat and Air-passages.

This affection of the glandulæ of the pharyngo-laryngeal membrane, not having been considered, by practical, medical writers, as a distinct disease, its literary history has never been given. Not, indeed, until within the last twelve or fifteen years, has the progress, or the prominency of the disease been such, as to call the attention of practitioners, to its marked and distinctive symptoms. No writer upon medicine, anterior to the above period, has, so far as I have been able to discover, made any allusion to the essential nature, and characteristic features of the disease. But, whatever may have been the opinion of medical men in general, since the attention of practitioners has been drawn to the complaint, respecting its true pathology, the idea conceived, and entertained by some, that it is a new disease, cannot, I think, be generally received ; for the same physical causes, which may now tend to induce the disease, have always been in operation. That the complaint may have existed for an indefinite period of time, and yet have escaped the observation of medical writers, so far as not to have been considered a distinct disease, will not appear so surprising, when we recollect that, that formidable, and often,

fatal malady croup, was scarcely recognized, as a distinct disease, until the middle of the last century; that, laryngitis was confounded with the other forms of cynanche, and, in fact, was not identified, and separated from them, till after the commencement of the present century; and that, to Dr. Badham, who, in 1808, wrote on inflammation of the mucous membrane of the bronchi, is due the merit, of having called the attention of the profession, expressly, to this interesting form of disease; and, of giving to it, the appropriate name of bronchitis. With regard, therefore, to the past existence of follicular inflammation of the air-passages, it may be said, as M. Rayer-Collard has remarked of croup: "Les causes qui concourent à la production de la maladie ont existé de tout tems, et il serait bien extraordinaire qu'elles fussent restées inactives, et pour ainsi dire, silencieuses pendent une langue suite de siècles, pour se reveiller avec une énergie aussi féroce que subite."*

The first case of well-marked, follicular disease, which came under my notice, was that of a clergyman; and occurred in the early part of 1832. During the preceding year, however, the attention of practitioners, in different parts of New England, had been called to the fact, that, many clergymen, in different sections of the country, were seriously affected; and, in some instances, were wholly incapacitated for public speaking, by "a distemper

* Dict. des Sci. Med. Art. Croup.

of the throat," which was characterized by symptoms of a peculiar nature, and of unusual severity.

By inquiries, directed to this point, I have not been able to ascertain that any strongly marked cases, of this form of disease, had been observed prior to 1830. During this year, it will be remembered, that an epidemic influenza prevailed in this country, which, not only extended over all the United States, but spread throughout Europe; and, so far as is known, over the whole civilized world. Whether this epidemic, or the causes upon which it depended, had any agency in increasing the frequency of the disease under consideration, or, in changing its character into one of a more malignant nature, it is impossible now to determine. Certain it is, however, that while the influenza of this period, was the precursor of epidemic cholera, in some parts of the world, in many portions of the United States, it was early followed, by the above form of follicular disease.

That this affection, in its more aggravated form, is of recent origin; or, that it was formerly confounded with other diseases of the air-passages, we have the concurrent testimony of various writers, who have alluded to the prevalence of the complaint. Prof. C. A. Lee, of New York, who published in 1836, "An inquiry into some of the causes, of disease among the Clergy"—remarked, under the head of "Chronic Laryngitis," upon the alarming degree of prevalence which this disease

had attained, among that class of persons; and adds: "It is but a few years since this disease was unknown, almost by name; or if now and then a case did occur, it was generally of so mild a character, as to yield to very simple treatment."*

For some time after the appearance of the disease in this aggravated form, it seemed to be confined in its attacks, to public speakers, and of these, the clergy were the most frequent sufferers. Hence, the affection was early called, the "Clergyman's Sore Throat." It was soon found, however, that individuals of every profession, of all occupations, and of different ages and sexes, were liable to the disease. Of nearly four hundred cases, that have fallen under my observation, only about seventy-eight; or one in five, of this number, were, in any way, public speakers. When, however, the affection does occur, in those persons who are in the habit of exercising the vocal organs, by public speaking, singing, teaching, &c., it is always, for obvious reasons, attended with symptoms of a more aggravated nature, than when it appears under ordinary circumstances.

The various appellations, both in popular, and medical technology, which have been given to this disorder, have served to convey most erroneous impressions, to the professional, and the non-professional public, with regard to the true seat, and nature of the affection.

* Literary and Theological Rev. Sept. 1836.

Dr. Mason Good, in his Nosology, has remarked, that "We are overloaded with terms to express the same idea, and of these terms, a great number are so loose and indefinite, as to convey no precise idea, whatsoever; whilst others, on the contrary, cannot fail to excite an erroneous one." Such, precisely, has been the result of applying to the follicular disease, of the pharyngo-laryngeal membrane, the terms "Bronchitis," and "Chronic Laryngitis"—one, or the other of which appellations, have been, universally employed, by the profession, to denominate the above affection: designations, which have served to convey no correct, or definite idea, of the nature, or seat of the malady; but, on the contrary, to "excite an erroneous one."

This will readily be admitted, when we remember the difference in the location of the several diseases, and the different lesions, which constitute their characteristic features.

Bronchitis, as has been demonstrated, consists, essentially, of an inflammation of the lining membrane of the bronchial tubes, and of the pulmonary vesicles; whilst the disease, of which we are treating, is primarily, located in the fauces, and superior portion of the respiratory apparatus; and has, for its peculiar essence, a diseased condition of the glandular follicles of the mucous membrane, which lines these parts.

Chronic Laryngitis, again, is a term which is ap-

plied to a sub-acute form of inflammatory action, affecting, principally, the mucous, and sub-mucous, cellular tissues of the larynx, and epiglottis; and, which is followed by an increase of thickness, and, often, by an erosion, or ulceration of that portion, especially, of the lining membrane, which occupies the entrance of the glottis, and the laryngeal surface of the epiglottis. But, in this affection, the mucous follicles are the seat of the disease; and these may be inflamed, and even ulcerated, whilst the intervening membrane is, in some instances, not only free from inflammation, but, actually paler than natural. These appellations, therefore, being "loose and indefinite," should, in their application to this form of disease, be discarded from medical technology.

We may have recourse to the dead languages, for a name; but the term *follicular disease of the pharyngo-laryngeal membrane,* is one, sufficiently scientific, and accurate, for all useful purposes.

As this disease, however, in its advanced stage, seems to be constantly attended with a secretion; either within the mucous follicles, of a peculiar, concrete substance, resembling tubercle; or with an infiltration of this tuberculous matter in the sub-mucous, cellular tissues, it may, with propriety, be denominated *tubercular sore throat.*

Description of Follicular disease of the Air-passages.

This peculiar malady consists essentially, in its formative stage, of an inflammation of the mucous glandulæ; which is sub-acute in its character; and, which may result, as above stated, in hypertrophy, ulceration, or induration of these glandulæ, or in a deposition of tuberculous matter into the substance of the follicles, themselves.

In its simple, and uncomplicated form, the affection commences, invariably, in the mucous follicles of the fauces, and pharynx; and is extended thence, by continuity, to the glandulæ of the epiglottis, larynx, and trachea; and, in some instances, to those of the œsophageal membrane.

So insidious, frequently, is the onset of this disease; and so gradual its progress, that, in some instances, it will be found to have continued many months; and to have made considerable advance, before the presence of any prominent, local symptom, shall have called the attention of the individual, to the existence of the affection. He then, perhaps, becomes aware of an uneasy sensation in the upper part of the throat; accompanied by a frequent inclination to swallow; as if some obstacle, in the passage, might be removed by the act of deglutition; or, more frequently, there is an attempt made, and often repeated, to clear the throat, by a kind of screatus, or hawking, and to relieve it, of a sensation of "something sticking at the top

of the wind-pipe." About the same time, there is observed an alteration in the quality, or *timbre* of the voice; there is experienced, in the vocal organs, a loss of power, and a hoarseness is present, which at first, is hardly perceived in the morning, or after a full meal; but, which is increased towards evening, and after speaking, or reading, longer, or louder, than usual. The mucous secretion, which in a healthy condition of the glands, is bland and transparent, becomes viscid, opaque, and adherent; and is increased in quantity. Frequently, there is a slight soreness, felt about the region of the larynx, but seldom is any cough present, at this stage of the disease. In this condition, the symptoms may remain for a long period; sometimes, for years; nearly disappearing, at times, and, then, again, being greatly aggravated, by vicissitudes of temperature, increased exercise of the vocal organs, and by various, other morbific causes.

If we inspect the throat and fauces, during the progress of the above symptoms, we shall find the epithelium; which in the healthy state of the mucous tissue, covers its surface, more or less destroyed; its absence being manifested by the slightly raw, or granulated appearance, which the membrane presents; the mucous follicles will be found hypertrophied, and will appear distinctly visible; especially, those studding the upper and posterior part of the pharyngeal membrane. (See plate I.) If the disease has been long-continued,

a portion of the follicles may be found indurated, or, in some instances, filled with a yellowish substance, having a resemblance to, and presenting the physical characters of, tuberculous matter; whilst striæ of opaque, adhesive mucus; or of a muco-purulent secretion, may be seen, hanging from the veil of the palate, or coating the posterior wall of the pharynx. As the disease advances, and the follicles, situated at the root of the epiglottis, and in front of the arytenoid cartilage; and the still more numerous glandulæ of the laryngeal, mucous membrane, become involved in the morbid action, all the above symptoms appear greatly aggravated; the hoarseness is much increased, and is constant; speaking, or reading aloud, is attended with great difficulty; and when continued for any period, is followed by pain, and increased soreness, in the region of the larynx; and by a sensation of extreme languor, not only about the vocal organs, but throughout the whole system. In some cases, where the disease affects the glands, situated in the ventricles of the larynx, and near the vocal chords, the voice becomes completely extinguished; or, if by great effort, the patient essays to speak aloud, the vocal resonance is uneven, harsh, and discordant.

In such cases, notwithstanding the situation and extent of the disease, there is seldom present, any decided, or troublesome cough; and, in this respect, follicular disease differs, essentially, from

all other, equally grave, laryngeal affections.—Cases have fallen under my observation, repeatedly, where the affection had advanced, until the symptoms present, indicated extensive disease of the follicles of the larynx, and of the membrane covering the vocal ligaments;—until the ulceration of these glands, situated at the root of the epiglottis, could be felt upon the laryngeal surface, and yet the patient would remain free, or nearly free, from a cough, notwithstanding an abundant, acrid secretion, poured out by the diseased follicles, would occasion an incessant hawking, to clear the upper part of the wind-pipe and the pharynx, of this tenacious mucus.

As illustrative of many points in the above description of uncomplicated, follicular disease, I have selected the following cases:

CASE I.

In this case, I was more than ordinarily interested; for, besides being that of a highly respected, and personal friend, it was the case of one, whose worth is known, and whose fervid eloquence in the pulpit, has been felt and acknowledged, by thousands in America.

A part of the history of his case, enclosed in a communication, which I received from him, on the subject of his disease, I shall give in his own words:

"My attack came on in the summer of 1835.

For several months, previous to the attack, my labours had been quite arduous. The disease came on, at first, in the form of *hoarseness*—the throat being slightly inflamed, and the uvula a little elongated.

"My general health, at this time, was very good, and had been, for two or three years. Soon after the attack, I left the city, and spent six weeks, in travelling; but returned home, without any improvement. Indeed, the hoarseness increased, in a few weeks, so that I could only converse for a few minutes, at a time, without being nearly shut up to a whisper; and the symptoms of the disease, already noticed, became more confirmed. The throat, at this time, was covered with *small protuberances*, or *tubercles*, of a deep red; the blood vessels in the membrane of the throat, were filled to repletion with blood; and a slimy fluid was constantly collecting, about the back parts of the mouth. I had no cough, however, at any time; and, scarcely ever, any severe pain. Finding that I must give up to the disease, I suspended all my official duties in September, and became a prisoner at home, under the directions of my physicians, for three or four months. During this period, I lived quite abstemiously—I was leeched, once or twice, and blistered for several weeks, continuously, on the back of the neck, and, subsequently, on the throat; I was, at the same time, using a variety of gargles. The effect of all this, was merely to keep

the disease in check—not to remove, or even reduce it.

In December, following, this gentleman was put under more appropriate treatment. Efficient, topical remedies, were applied, directly to the "diseased spots," which, with other means, were effectual in arresting the complaint. In February, he began to preach once a week, and continued to do this, for several months; then, twice a week, and thus, gradually, came to resume his entire official duties. In February, 1838, he thus writes: "I have now been discharging all my public duties, without inconvenience, for a year. I consider my throat to be well, although it is left in a weaker condition than it was formerly, so that a cold always affects it, more readily, than any other part of my system."

CASE II.

The subjoined case, is also that of a clergyman, eminent, and extensively known, as an eloquent preacher, and an accomplished writer; and is given in his own words.

I place the higher value upon these cases, inasmuch, as they are those of men of intelligence and observation; and because, moreover, in communicating to me, a history of their malady, they have described the principal, characteristic symptoms, without possessing any knowledge, whatever, of my views, as to its peculiar nature.

In a letter received from the Reverend gentleman, to whom allusion is made, above, he thus writes:—"About five years ago I perceived that public speaking was always followed by soreness in the throat, which I did not much regard, as the lapse of a day uniformly relieved it. Three years since, the efforts of public speaking, became more painful, and from that time, until the present, I have been sensible of permanent disease of the throat. I did not desist from preaching, until about two years ago, when I was compelled, by the urgency of the symptoms.

"My voice failed; the wind-pipe seemed to close, and every word was uttered, with a strain upon the vocal organs, which was followed by general prostration of the system.

"My present condition is as follows:—constant uneasiness, in the region of the larynx, frequently, a sore sensation about the external parts, more sensible upon pressure; some inflammation internally, but not very low down; a constant inclination to swallow, or to clear the throat, as if there was some obstruction; and all these symptoms are aggravated by long conversation, or by taking cold.

"I have no cough, and can detect no pulmonary weakness, as yet. Since I have abstained from preaching, I have increased very considerably in weight; my appetite is good, and my general health is unimpaired.

"Within the last six months, I have at several

times, for a few days together, felt so much better, as to entertain hopes of a release from my disease; but, upon trial of my voice, in a very moderate way, I discovered that the soreness would return.

"While I remain quiet, I am comparatively easy in my feelings; and I know not that I am worse now than I was two years ago.

"I am much occupied in my editorial duties, and if it was not for this, I am persuaded my spirits would be much depressed. I have seen a number of cases, much more distressing than my own, promoted, perhaps, by continuing to preach when really unfitted by disease; and these I have remarked, are accompanied by mental depression, arising as I supposed, from the stern necessity of abandoning a beloved profession, and, perhaps, from the pecuniary embarrassment, into which a family might be thrown."

This last allusion, to the connection which exists between the mind and the disease, relates to a characteristic of this affection, to which I shall again refer.

In the above cases; so far as the description goes, the disease in its primary and simple form, is correctly portrayed; and I have now lying before me, ten or fifteen letters, from various individuals —most of them clergymen, or other public speakers, residing in different parts of the United States; describing the disease, as it has occurred in themselves; in all of which descriptions, the leading,

pathognomonic symptoms of the malady, have a most marked, and apparent relationship. But, I shall pass by these cases, and present others, which have fallen under my immediate observation.

CASE III.

In June, 1841, Rev. Mr. S. of this city, aged 34 years, came under my care, for an affection of the throat, which, for the four years preceding this period, had incapacited him for public speaking. The disease came on much in the same way, as its access is described to have been, in the preceding cases. Whilst engaged in his official, public duties, he had observed for some time, an increasing irritation and soreness, about the fauces and throat, accompanied by a hoarseness, and a frequent inclination to clear the voice when speaking. These symptoms, which, ordinarily, passed off, after a few days of rest, were disregarded until his voice failed, and he suddenly broke down, under his pastoral labours.

Finding himself entirely unable to discharge his professional duties; although still possessing a good degree of general health—and after resorting to various measures, to restore to a sound condition his vocal organs, all of which proved ineffectual, he resigned his ministerial charge, and sailed for Europe: cherishing the hope—in which his numerous friends ardently participated—that the

sanative influence of a sea-voyage, and a foreign tour, would prove efficient, in removing his most troublesome, and perplexing malady.

After an absence of many months, he returned to his home, invigorated by this long relaxation, from his duties, and although there still remained some sensibility of the larynx, and a slight huskiness of the voice, yet, he felt, that with due caution, he might with safety, gradually resume his public duties. A single attempt, however, to speak in public, soon after his return, entirely dissipated this hope. His voice, again, gave way; hoarseness, with every other morbid symptom, which previously attended his disease, returned, in a still more aggravated form than at first. In this condition his case remained:—marked by an occasional remission of the symptoms, but attended by no permanent improvement,—until the period above mentioned, when, as I have stated, he came under my care.

His condition at this time, was as follows:—His general health, although impaired by the long-continued, local disease, was still very good; yet his countenance exhibited a sallow hue, and was marked by that care-worn, and anxious expression, which I have often observed in those cases of tubercular sore throat, which have been protracted, through a long period of time. Constant hoarseness was present, and his voice, when uttered aloud, was rough and hollow. Speaking was

accomplished with difficulty, and if continued, as in ordinary conversation, for a short time, only, was followed by soreness and increased hoarseness, and, sometimes, for a short period, by complete aphonia. His throat, on being inspected, presented an enlarged, and cavernous appearance; as if the pillars of the fauces, and the pharyngeal muscles, had become atrophied, or had been wasted away, by discase, in a manner greatly to enlarge the posterior fauces. The mucous membrane, lining these parts, was covered by diseased follicles, some of them greatly enlarged, and indurated, others slightly hypertrophied, and filled with a semi-fluid substance, resembling tuberculous matter. On pressing down the tongue, the epiglottis could be seen, standing above its base, erect, and ædematous; its edges red, and slightly ulcerated, whilst a vitiated, mucous secretion was being constantly poured out, from the diseased glands, occasioning an incessant hawking, to relieve the throat of this cause of irritation. Pressure upon the thyroid cartilage, increased the pain and soreness, which were constantly felt in the larynx. This last symptom, together with the permanent hoarseness, and the partial extinction of voice, was plainly indicative, of the mucous follicles of the ventricles, of the larynx, and of those around the chordæ vocales, being involved in the disease. Yet, there was no cough present, nor could a rigid examination of the chest, detect any morbid altera-

tions, in the pulmonary organs. All mental excitement affected him injuriously; it had a tendency, invariably, to aggravate the local difficulty —although no effort, whatever, might be made to exercise the vocal organs. The tongue was coated, his pulse, seventy-six in the minute, and quite feeble.

The Reverend gentleman was first placed upon an alterative plan of treatment. Pills, composed of two grains of extract of conium and the eighth of a grain of hydrarg. chlorid. corrosiv. were administered—one morning and night; and the iodide of potassium was exhibited twice a day, in three grain doses; entire rest of the vocal organs was enjoined, and he was directed, moreover, to have a small amount of the following ointment applied, morning and night, over the cervical portion of the vertebral column.

℞ Ant. et Potass. Tart. ℥ij.
Camphori pulv. ℥ss.
M. Cerat. Simp. ℥j.

June 20th.—The antimonial ointment, having produced a copious pustular eruption, on the back of the neck, its use was continued, only on each alternate day; sufficient to maintain that degree of counter irritation, which had already been established.

July 9th.—The secretion, from the mucous follicles of the fauces, and pharyngeal membrane, is less adhesive, but has increased in quan-

tity, since the administration of the muriate of mercury; but the glands themselves, present the same enlarged, and diseased appearance as at first; while the hoarseness, and the pain and soreness, in the laryngeal region, are unabated.

The isthmus of the fauces and the pharynx were now freely cauterised, by applying directly to the parts, a sponge,—attached to the end of a piece of bent whalebone,—which had been saturated in a solution of the nitrate of silver, of the strength of forty grains to the ounce of water. Under this application, repeated every alternate day, the follicles assumed a more healthy appearance, and became less apparent; but the hoarseness, and the soreness, within the larynx, continued. On the 14th, I determined to cauterise the larynx, and having pressed down the tongue with a spatula, I passed the sponge; dipped into the solution of the nitrate of silver, of the above strength, over the top of the epiglottis; which could be seen standing, erect, at the base of the tongue; and plunged it between the lips of the glottis, into the larynx, and down to the chordæ vocales. A momentary spasm of the glottis ensued, by which the fluid was pressed from the sponge, in sufficient quantity, to bathe the whole surface of the laryngeal membrane. Its application was immediately followed, by a fit of coughing, and a free expectoration of viscid mucus. The irritation, however, soon subsided, and was succeeded, the next day, by a sensation of relief

about the larynx which the patient had not experienced for years.

On the 17th, the cauterization of the larynx was repeated; and again on the 20th. By this time, the improvement of the patient was very manifest; the huskiness of the voice, and the sensibility of the larynx, had nearly disappeared, and he was enabled to speak, and to read aloud, for a considerable length of time, without experiencing, subsequently, any of that soreness, within the larynx, or of that distressing sensation of fatigue, which, for a long period, had constantly followed any attempt, to exercise the vocal organs. The topical medication was continued, every few days, until the eighth of August, when the Reverend gentleman ventured to resume his official duties; and, on this day, preached in the morning, and read service in the afternoon. It was his first attempt, with one exception, to speak in public, for the last four years; and this effort was followed by no increased sensibility of the larynx, nor by any unusual fatigue; and he has since enjoyed a good degree of general health, and an ordinary immunity from laryngeal disease.

The above case did not come under my care until the disease had passed through its earliest stages; consequently, the first manifestations of the malady were not observed. In the following

case, I had an opportunity of observing the disease, from its commencement, and of watching the progress and development of the symptoms, through its formative stage.

CASE IV.

K. H. E., Esq., a lawyer of eminence, in this city, aged 38 years, suffered from an attack of acute bronchitis, in April, 1840. Under the most active treatment, he recovered from the disease, and resumed his professional duties. In 1841--2, he was a member of the Common Council, and, in addition to the duties of a full practice, which necessarily involved much public speaking, he was frequently engaged in the exciting debates of the honourable body of which he was a member.

Early in 1842, he began to be sensible of a slight huskiness of the voice, and of an uneasy sensation in the throat, after public speaking. These symptoms would all subside, after a little rest, but only to be renewed, at each subsequent, public exercise of the vocal organs. It was observed, that this hoarseness gradually increased, and that the irritation, about the throat, impelled the individual to make frequently repeated efforts, at hawking, as if to remove some obstruction from the larynx. Being in attendance upon his family, during the progress of these symptoms, I had frequent opportunities to inspect his throat, and I observed that

the follicular glands, of the isthmus of the fauces, and of the superior portion of the pharyngeal membrane, were slightly hypertrophied, and were pouring out an altered, and increased secretion. Believing on his part, that these morbid symptoms would pass away, no special attention, to his case, was required, or given, until the latter part of July, 1842. At this time, a permanent hoarseness was present; the voice was rough, and uneven, with a constant irritation, and a sensation of soreness in the laryngeal cavity;—symptoms that were all greatly increased, by every effort made, and continued, to speak, or read aloud.

The diseased follicles now presented a very different appearance from that which they had exhibited, a few weeks before. The posterior fauces, and pharyngeal membrane, were studded with elevated tubercles, with inflamed bases, or granulations of different sizes, like pustular inflammation—bearing a marked resemblance to the papulæ of varioloid.

The most pendant portion of the uvula, which was greatly elongated, was also covered by similar diseased follicles. Compelled now, by the severity of the disease, to relinquish, in a great measure, his professional duties, he applied to me for medical aid.

August 4th.—Removed the diseased portion of the uvula, and after waiting a few days, to allow the truncated part to heal, I applied the nitrate of

silver, in substance, to each enlarged follicle, that could be seen, and ordered pills, composed of the tenth of a grain of bichloride of mercury, with two grains of the extract of conium; one to be taken night and morning.

24th.—The affected glands are much less in size; the huskiness of the voice, and the sensibility of the larynx yet remain. Passed the index finger of my left hand, over the back of the tongue and laryngeal face of the epiglottis. The base of this cartilage, and the lips of the glottis, were slightly œdematous. Cauterized the fauces and pharynx, with a solution of the nitrate of silver, of the strength of forty grains, to the ounce of water; discontinued the pills, and ordered, one teaspoonful, of the following solution, to be taken in sugared water, three times a day:—

℞. Potassii. Iodid. ℥ij.
Aq. distil. ℥iv.
M.

The patient complains of a dull pain in the back of the neck; counter irritation, by means of antimonial ointment, was employed, along the cervical portion of the vertebral column.

September 6th.—The enlarged follicles have nearly disappeared; the mucous membrane, of the fauces and pharynx, appears smooth, and of a healthy colour; but the hoarseness, and sensibility in the laryngeal cavity, are, in no degree, relieved. The least excitement, he remarks, affects him, injuriously, there; and if he attempts to read to his

family, or to converse, in an ordinary tone of voice, with a friend, all these symptoms are greatly aggravated.

Confident from these symtoms, that the follicles, about the vocal ligaments, were diseased, I determined to cauterize the interior of the larynx. This was effected by passing the sponge, wet with the solution, over the laryngeal face of the epiglottis, and pressing it between the lips of the glottis into the laryngeal cavity. By the spasmodic action that succeeded, the fluid was expressed from the sponge, and this latter being quickly withdrawn, its removal was followed by a convulsive cough, and a free expectoration of adhesive mucus. The unpleasant irritation, thus produced, in the larynx, subsided, in a few minutes, and, as is very generally the case, in such instances, was followed, in the course of the subsequent twenty-four hours, by marked relief. As the effects of the cauterization, however, did not entirely pass off, for several days, the employment of topical medication was not renewed, until the thirtieth, when the pharynx, and the interior of the larynx, were, again freely cauterized.

This operation was repeated; at first every third, or fourth day, for some time; then, every week, until the first of November, when the hoarseness, and the sensibility about the vocal ligaments, had disappeared, and the patient was enabled to resume, and again to discharge, his professional

duties, without any other inconvenience, than a debility of the vocal organs, which, however, under the use of local and general tonics, soon passed away.

In all cases of sub-acute inflammation of the mucous follicles, the tendency of the morbid action, is to terminate, ultimately, in ulceration; although, as we have seen, these glands may remain, in a state of hypertrophy, or induration, in some instances, for years, before this form of structural lesion shall occur. Ulcerations of the follicles of the air-tubes, differ, essentially, in their appearances, from those ulcerations of the mucous membrane, which are the frequent consequence, of inflammation of that tissue. In the latter, when the result of chronic inflammation, the ulcer commences by destroying the epithelium, and then, extending its circumference, and depth, penetrates the mucous tissue, and appears in the form of a superficial ulceration, with irregular edges, and a rough, sloughy base.

Ulcerations of the glandulæ, are preceded by chronic inflammation, and hypertrophy of these bodies, and when thus engorged, the follicles appear like small points, beneath the mucous membrane. If the irritation continues, infiltration of puriform, or tubercular matter, takes place within the cavities of the glands, by which the parietes

are distended, and finally, are ruptured ; and they are then seen, in the form of small, reddish elevations, with irregular, hardened edges, and having central ulcerations, which often extend into the sub-mucous, cellular tissue.

Follicular Disease, terminating in Ulceration of the Mucous Glandulæ.

CASE V.

In January, 1840, G. B., aged 37, a merchant of this city, came under my care, when labouring under a most severe form, of pharyngo-laryngeal ulceration, consequent upon long-continued, chronic inflammation of the follicles of these parts. The subject of this case was a gentleman of the highest respectability, and who had never suffered from syphilitic disease.

When called upon to prescribe for him, the affection had existed over four years. Coming on, in the insidious manner that has been described, the disease had made considerable progress, before his case was deemed of sufficient importance, to require medical treatment. At length, he placed himself in the hands of some Homœopathic physicians of this city, under whose treatment he remained for two or three years. In the mean time, the disease, of course, continued to advance, until extensive ulceration of the pharyngo-laryngeal follicles, had taken place. Still placing his confi-

dence in this "fabric of a vision,"—Homœopathy, he visited Paris, and put himself under the care of the celebrated Hahnemann, who treated his case, for three or four months;—but with as little success, as had attended the prescriptions of his satellites, in New York.

Discouraged at last, or losing confidence in the plan of treatment, proposed by Hahnemann, he came back to New York, and, soon after his return, placed himself under my care.

His general health, at this time, had become much impaired, doubtless, through the long-continued influence of the local disease. The whole throat; which presented an atrophied, and cavernous appearance, was studded with diseased follicles, some of which were greatly enlarged, and vascular, or were filled with tuberculous matter; whilst others were broken down, and destroyed by ulcerations. The uvula was elongated, and the epiglottis, which could be seen above the back of the tongue, was erect and œdematous, and its circumference was serrated with ulcerations. On examining the epiglottis, with the finger, an extensive and deep ulcer could be felt at its base, on the laryngeal surface of this cartilage; whilst the pain in the larynx,—the soreness experienced on pressure over the thyroid cartilage, together with the constant hoarseness, and irritation, in the laryngeal cavity, showed, conclusively, that the ulcerations had extended to the vocal ligaments. The

patient complained of a dull pain, and a sensation of great weakness, under the sternum; there were present, also, a cough, emaciation, erratic pains, in the chest, and other constitutional symptoms, that indicated the presence of tubercles in the lungs; but, notwithstanding many of the rational symptoms of phthisis were present, a careful examination of the chest was made, without detecting any structural lesions in the pulmonary organs. Bronchial irritation, however, existed to a considerable extent.

The patient was directed to take, morning and night, one of the following pills:—

℞. Extract. Conii. ʒi.
Hydrarg. Chlorid. Corros. gr. iv.
Opii. pulv. gr. iii.
Fiat Massa, in pilulas, No. xxx. dividenda.

Full doses of the iodide of potassium, along with the extract of sarsaparilla, were exhibited, and counter irritation established, over the course of the cervical vertebra.

Under the use of these remedies, the secretions about the fauces, and larynx, soon became less viscid, but were increased in quantity. The uvula continuing to be relaxed, was now truncated, and the fauces, and the pharyngeal membrane, were freely cauterized, with a concentrated solution of the crystals of nitrate of silver.

This form of topical medication was repeated—at first, every other day, then twice a week, and,

finally, once a week, during the period of six weeks, or two months, when it was found that the ulcers, about the throat, had healed ; the enlarged follicles, had disappeared, and the whole interior, of the pharyngeal cavity ; as far down as could be seen, was covered with a healthy looking membrane : Yet, notwithstanding, the soreness *within* the larynx, the cough, and the huskiness of the voice, remained ; and, on examining the epiglottis, a deep, and irregular ulcer, occupying the location of the epiglottic gland, could still be felt, at the root of this cartilage, on its laryngeal surface. Confident that the same topical medication, that had been successful in removing the disease, above the epiglottis, would be equally efficacious, if it could be applied to the ulcers below this cartilage, and around the vocal ligaments, I determined to enter the larynx, and, if possible, arrest the disease, in this cavity. By pressing down the tongue of the patient, the lingual face of the epiglottis could be seen above its base ; retaining the parts in this position, a sponge which was attached to the bent end of a whalebone, and saturated with the solution, was passed over the top, and back of the epiglottis, and being brought forward, was pressed down, directly, into the laryngeal cavity. The operation excited a momentary spasm of the glottis, by which the fluid was discharged from the sponge, and brought into immediate contact with the diseased surface. This application was followed by the expectoration

of a great quantity of viscid, muco-purulent matter, during the day, and by subsequent, marked relief, to the affected organ.

At the end of a few days, the operation was repeated; and on this occasion, a solution of the crystals of nitrate of silver, of the strength of forty grains of the salt, to an ounce of water, was employed. Continuing this application, in the same manner, in this case, and for about the same length of time, in which it had been employed, in treating the diseased follicles of the pharynx; I had the satisfaction, of witnessing the disappearance of the hoarseness; of all laryngeal, and pectoral irritation, and of seeing my patient restored to robust health.

Ulceration of the mucous glandulæ, it has been stated, is one of the most frequent results of chronic inflammation of these bodies. When this morbid lesion occurs in the follicles of the laryngeal membrane, it exerts a decided influence, upon the vocal sounds.

From the observations of Louis, Andral,* and other modern pathologists, we learn that the symptoms developed, and the effects produced, upon the voice, by ulceration of the larynx, differ, materially, according to the seat, and extent of the

*Clinique Medicale, tome II. p. 208.

disease. This was found to be the case, in the twenty-two instances, recorded by M. Louis, of laryngeal ulceration, accompanying phthisis. In fourteen of these patients, in whom small, superficial ulcerations were found, seated, either within the ventricles between the arytenoid cartilages, or at the point of juncture of the chordæ vocales, the symptoms noticed, were hoarseness, more or less marked alteration, in the character of the voice, with heat and pricking pains, in the laryngeal region;—symptoms, which, ultimately, were followed, by the voice becoming more or less, completely extinct. In eight cases, of deep ulceration of the larynx, which destroyed, to a greater or lesser extent, the chordæ vocales, the same symptoms, developed with much more intensity, existed; and were accompanied, moreover, with a cough, which had a peculiar, cracked, or whistling character.

Dr. Ryland, in his Treatise on the Diseases of the Larynx, and Trachea, remarks: that when the mucous membrane, covering one of the vocal chords, only, is affected, the voice is rendered raucous and hoarse; if the investing membrane of both chords ulcerates, the voice loses its power, and becomes little more than a rough whisper. If, not merely the mucous membrane, but the thyro-arytenoid ligaments are injured, or destroyed, the state of aphonia is complete; no proper, vocal sound is distinguishable; and a whisper, which is

simply an articulation of the ordinary respiration, alone remains.*

Under the head of "Chronic Laryngitis" in the above Treatise, the author has given several cases of long-continued, ulceration of the larynx, attended with hoarseness, laryngeal cough, and complete aphonia, and which ultimately terminated in death.

I shall here take the liberty of subjoining one of these observations, abridged from the original.

CASE VI.

Ann Baker, aged 28, applied at the Infirmary, February 16, 1836, for medical relief, on account of soreness of the throat generally, and particularly of the laryngeal region, cough, difficulty of swallowing, and general fever. Pressure over the thyroid cartilage and friction of the larynx against the spine, increased the soreness of the throat. The remedies employed, afforded her no particular relief. On the 24th of March, she was much worse; the cough was frequent, and attended by mucous expectoration; deglutition was most painful, and the attempt to swallow liquids, produced feelings of imminent suffocation, and an instant rejection of the liquid through the nostrils; the voice was reduced to a whisper; respiration was hurried,

* Treatise on the Diseases of the Larynx, and Trachea. By Fredk. Ryland, p. 91.

and there was, also, hectic, and emaciation: death ensued on the evening of the 25th, in the midst of an unusually severe fit of dyspnœa.

Dissection.—Permission could only be obtained to examine the throat; but, as there were no particular indications of thoracic disease, this restriction was of little consequence.

There were two or three, broad, superficial ulcers, at the lower part of the pharynx, and on the back of the tongue, close to the root of the epiglottis. The mucous membrane, of both the anterior and posterior surfaces of the epiglottis, was covered with ulcers, intermixed, with red, projecting granulations, or caruncles, and the upper edge of this organ was festooned, and, as it were, eaten away, to the extent of about a third of an inch. The lips of the glottis, were greatly thickened, so as, internally, to diminish the area of the larynx, and also to project, externally, much more than usual. The mucous membrane, covering these thickened parts, and that lining the cavity of the glottis, the ventricles of the larynx, and that part of the organ, immediately below the vocal chords, were superficially ulcerated throughout.

M. Cruveilhier has also recorded some cases of disease, denominated by him, laryngeal phthisis, which demonstrate the effects produced upon the character of the voice, by ulceration of the laryngeal cavity.

The following brief observation I shall record:

CASE VII.*

A man, aged 40, entered the Maison Royale de Santé, with all the symptoms of laryngeal phthisis: emaciation without fever, voice extinct, frequent cough, and purulent expectoration. The examination of the fauces showed an erosion of the edges of the epiglottis, and ulceration of its anterior face. This man had suffered from laryngeal cough and hoarseness, for eight or nine months, but had continued to work, till about a fortnight before his admission. Deglutition was very difficult, on which account he abstained as much as possible from food; he was free from fever, and the lungs appeared to be sound. He died at a time when the event was least expected.

Sectio Cadaveris.—The circumference of the epiglottis was eroded and, as it were, festooned by the effect of ulceration. The superior orifice of the larynx, and the mucous membrane covering its posterior face, were thickened, ulcerated, and covered with caruncles

I have introduced these cases, for the purpose of showing some of the symptoms which indicate the presence of ulceration, in the laryngeal cavity; and, also, of exhibiting the changes which these alterations of structure will effect upon the voice, particularly, when occurring in the vicinity of the vocal ligaments.

* Cruveilhier, Anat. Path. du corps Humain, 5 ième livraison pl. 2.

The following cases, in which I had every possible evidence which symptoms can indicate, of ulceration of the follicles of the laryngeal membrane, and of those even, around the vocal chords, will illustrate the beneficial effects which follow the direct application of remedies, to the affected part.

The subject of the following case, is an intelligent young clergyman, from the country.

A short time previous to his coming under my care, I received, in a letter from him, a brief account of the commencement of his disease, which I shall take the liberty of giving in his own words:

CASE VIII.

W——, Sept. 25, 1841.

Dear Sir.—I have been, for the last six months, afflicted with the distemper called "Ministers' Sore Throat."

I have an iron constitution, and had enjoyed perfect health, for nine years before my attack. I was taken last spring with pain in the throat—mostly back of the palate; could see no connection between it and a cold. My voice soon became hoarse, and it hurt me some to talk. In about a week, I got better, and though I could still feel a soreness, I talked, debated, and studied, as usual. The disease came again, worse than before; pain more severe; voice more husky; and

it hurt me worse to talk. The palate was relaxed, and all the throat, in sight, appeared red, and inflamed. There was a slight pain and soreness in the larynx, or top of the wind-pipe, and speaking was followed by a sensation of great fatigue and uneasiness. It will be of no use to tell the many remedies I have tried—nothing I have done, or taken, has afforded me any permanent relief, or seemed, at all, to reach the disease. I now speak but little, and that little with difficulty. Excitement, if I do not speak, is very injurious to me, and I have to be very cautious, and not get at all excited or I cannot sleep," &c.

In October, 1841, about eight months after his attack, this gentleman came to New York, and placed himself under my care. The disease, in the mean time, had made serious progress, and his condition was as follows:—Considerable debility, and emaciation were present; the voice was reduced to a rough whisper; or, if by great exertion, it was uttered aloud, the act caused pain in the larynx, and the vocal resonance was hoarse and discordant; there was irritation, with pain and soreness, in the laryngeal region, and the patient manifested a frequent desire, by hemming, to clear the throat, but there was no decided cough present. On inspecting the fauces, the cavity of the throat was found to be very large. The muscular layers which connect the pharynx with the vertebral column, were wasted away, and the posterior

fauces presented the cavernous appearance which almost always, is present, when follicular disease has long existed. The mucous membrane, lining the sides, and the posterior wall of the pharynx, was covered with tubercles, or enlarged, mucous follicles. Some of the glands were destroyed, by ulceration, leaving small pits or depressions in the membrane, the bottoms of which were covered with a whitish-looking, adhesive mucus. On de-depressing the tongue, the superior half of the epiglottis could be seen above its base, thickened, with its circumference and lingual surface, eroded by ulcerations. The presence of ulcerations within the laryngeal cavity, was, also, indicated by the loss of voice, and by the pain and soreness, which was felt, whenever pressure was made over the thyroid cartilage.

October 17th—The whole of the pharyngeal membrane, the lips of the glottis, and the lingual surface of the epiglottis, were freely cauterized with a strong solution of the nitrate of silver. Small doses of calomel and opium, were exhibited, night and morning; the patient was ordered five, or six grains of the iodide of potassium, during the day, and counter irritation, over the cervical portion of the spinal column, was also established.

18th.—The posterior fauces were again cauterized, and, to-day, the sponge saturated with the above solution, (forty grains of the silver to an ounce of water) was plunged into the laryngeal

cavity. Considerable irritation, and a free expectoration of viscid mucus, followed this latter application.

On the 20th, the caustic, in substance, was applied to several of the most enlarged follicles, in the patient's throat, and the larynx again sponged with the solution. This last application to the larynx, and pharyngeal membrane was repeated every day, for a week; and, subsequently, every second and third day for three weeks longer. At the end of this period, the diseased follicles had nearly disappeared; the ulcerations around the edge of the epiglottis, had healed; and the voice of the patient, though still feeble, and imperfect, was in a great degree restored.

Mr. T. now proposed to leave New York, and though more applications were deemed necessary, to effect a perfect cure, yet, as he was anxious to return to his friends, such sanative measures were advised, as he himself, could pursue, and he left the city. He was directed to use his vocal organs for a short time, with great care; to gargle his throat, night, and morning, with the chloride of soda, properly diluted, and occasionally, to sponge the fauces, and pharynx, with a strong solution of the nitrate of silver.

This plan of treatment was continued, for several months, when his voice was sufficiently strong to enable him to speak in public.

In the course of the following year he received

and accepted, a call to become the pastor of a church in one of the towns of New England; and from that time to the present, he has been occupied in the full discharge of all his official duties, without experiencing any return of his laryngeal difficulties.

CASE IX.

In July, 1844, G. S. J., a merchant of Norwalk, Conn., forty years of age, came to New York, for medical advice. He had suffered under follicular laryngitis for nearly two years, and for a period of over fourteen months, had been unable to utter a sound, above a whisper.

The following is an abstract of the history of his case. In the fall of 1842, being actively engaged in business, after somewhat more than ordinary exertions, he found his voice began to fail; he grew hoarse; and there was a sense of uneasiness and pain about the throat. Debility came on, and was attended with a great degree of nervous irritability. So great were the difficulties, arising from his hoarseness and prostration of strength, that he was obliged to relinquish his business, and "take to medicine." Still these unfavourable symptoms increased; and in May, 1843, he became completely aphonic; and this condition of the voice has continued up to the present period.

July 30th.—The patient appears to be suffering under great debility; there is emaciation, with

feeble pulse, and pain in the thorax, but especially under the lower portion of the sternal bone. The natural voice is completely extinguished, and his words are articulated in a whisper, not above the ordinary respiration ; there is a sense of uneasiness, and constriction in the upper part of the throat, and soreness is complained of in the cavity of the larynx.

On examining the throat, an unusually large cavity, behind the veil of the palate, is presented. The membrane lining this cavity is studded with granulations, interspersed with many ulcerated points. The uvula is greatly elongated, and enlarged, and the tonsillary gland, on both sides, is hypertrophied and ulcerated. (See plate III.) The epiglottis ;—one half of which can be distinctly seen,—is thickened, and its circumference serrated with ulcerations ; the lips of the glottis, examined by the finger, are plainly œdematous, and every symptom is present, which indicates ulcerations in the vicinity of the vocal ligaments.

July 31st.—I excised the diseased tonsils, and the elongated uvula ; removing more than one inch of the pendulous extremity of the latter organ.

August 1st.—Applied a strong solution of Argent. nitrat. (forty grs. to the oz.) to the fauces, and pharyngeal membrane, and ordered counter-irritation to be established over the cervical, and upper portion of the dorsal vertebræ. As the patient was suffering from weakness, and nervous irritability,

he was directed to take, three times a day, a teaspoonful of the following mixture:—

℞. Ext. Hyosciami, ℥iss.
Sesqui oxydi ferri, ℥ij.
Syrupi tolutan.
Tinct. Cinch. āā ℥j.
Ol. Gaultheriæ, gtt x.
Aq. distil. ℥ij. M.

August 2d.—The application to the posterior fauces, yesterday, and about the epiglottis;—for the attempt was not made to go below this valve;—was followed by a copious expectoration of viscid mucus from the throat, and a sensation of relief which the patient had not experienced in these parts for many months. I now determined to pass the aperture of the glottis, and cauterize the interior of the laryngeal surface; but in attempting to introduce the sponge, some difficulty was experienced, on account of the extreme irritability of the parts. By depressing the roots of the tongue, however, I succeeded, at length, in passing the sponge, previously saturated with the strong solution, into the glottis, by which the interior of the laryngeal cavity was bathed with the fluid. A momentary constriction, at the upper part of the wind-pipe, and considerable irritation, followed this application; but the subsequent free discharge of adhesive mucus, and the great relief it brought, encouraged me to repeat the operation.

August 3d.—Cauterized the fauces, and pharyngeal membrane, and again introduced the sponge

into the glottis. On this occasion, the patient complained much less than when topical medication was employed, for the first time, below the epiglottis; although the solution was of the same strength; namely;—forty grs. of the salt to an ounce of water.

The application of the above solution, to the posterior fauces, and within the glottis, was continued, daily, for about a week, when the ulcerations about the pharynx, had healed, and the mucous membrane began to assume a healthy appearance. About the same time, the soreness, and irritation, in the laryngeal cavity, and the pain of which the patient had complained, under the sternum, entirely disappeared, and on the twelfth day from that on which the topical remedy was first employed, the voice of the patient returned, and vocalization, in the course of a few days longer, was fully established.

This day, September the 19th, Mr. S. J. called at my office in perfect health. Since the middle of last month, he had experienced no pain, or irritation, whatever, in the throat, or pulmonary organs. Under the use of general tonics, his health, and strength, have returned, and the volume, and power of his voice are as great, perhaps, at this time, as at any period of his life.

From the above case it will be seen that the disease, even in its more aggravated form, is not confined, altogether, to public speakers. Persons of

all professions, and occupations, as has been previously stated, may be the subjects of its attack. Females, however, are much less liable to the affection than men. This immunity from laryngeal and tracheal diseases, in the sex, has been observed, by MM. Serres, Louis, and other pathologists. The latter, in his interesting work on pulmonary phthisis, has reported, among his valuable, statistical observations, fifty-three cases of ulceration of the *epiglottis;* of which thirty-nine occurred in men, and fourteen in women; also, eighty-six cases, where lesions were found in the *larynx*, sixty of which were in men, and twenty-six in women; and of ulcerations of the *trachea*, one hundred and seven cases are recorded by Louis; of these, thirty were in females, and seventy-seven in men.* The same difference, with regard to the frequency of attack, in the two sexes, I have observed to exist in follicular disease of the throat. Of the four hundred cases, which have fallen under my observation, not more than one in four of these, have been among women. That it may occur, however, in females, in as severe a form, as in men, the following case will prove.

* Researches on Phthisis. By P. C. A. Louis, M.D. pp. 42–3. Sydenham Society Edition.

CASE X.

Mrs. F. G., aged 32, of Easton, Penn., came to New York for medical aid, the 1st Sept. 1844.

Hereditarily predisposed to tubercular disease, she had, on several occasions, during the three, or four years, which preceded her visit to this city, exhibited some of the earliest symptoms of pulmonary phthisis. Two years, or more, ago, when labouring under a slight cough, dyspnœa, and other pulmonic symptoms, she, with her husband, went to live in a malarious district, in New Jersey. Here, in the course of the year, she contracted an intermittent fever, under which, in a mild form, she suffered for several months. But, in June, 1843, she left her residence, in New Jersey, and went to reside in a more healthy region of country; where, under the influence of a salubrious atmosphere, all symptoms of ague passed away, and along with these, disappeared, also, her pulmonic difficulties. About eight months ago, she began to experience a slight uneasiness in her throat, accompanied by soreness, and a constant desire to clear the passage; symptoms, which were soon followed by hoarseness, a slight cough, increased tenderness in the laryngeal region, and a difficulty in swallowing. So urgent, indeed, had this latter symptom become, that, for several weeks, preceding her visit to New York, she had found it

very difficult to swallow her food, unless taken in liquid form, or made soft by careful mastication.

I saw her on the 3d of September, and found her pale, feeble, and emaciated; pulse languid; voice hoarse and raucous, and at times reduced to a whisper; cough frequent, and accompanied by a slight expectoration of viscid mucus. She complained of a difficulty of deglutition; a sense of smarting in the gullet, and soreness, whenever pressure was made over the thyroid cartilage. On inspecting the throat, the enlarged cavity of the posterior fauces was found covered with diseased, follicular glands; some of them in a state of ulceration, and others were filled with a puriform matter. About one-third of the epiglottis was in sight; its circumference, and lingual face, were extensively ulcerated, which accounted for the pain, and difficulty, which the patient experienced, in deglutition; the uvula was considerably elongated, and the curtain of the palate was pale, relaxed, and œdematous. Some dullness was observed, in the left lung, on percussing the chest, but a rigid examination, into the condition of the thorax, was not instituted at this time.

The elongated uvula was immediately truncated, and, on the following day, topical remedies were freely applied to the posterior wall of the pharyngeal membrane, and the lingual face of the epiglottis. The iodide of potassium, in combination with the extract of sarsaparilla, was also exhibited. The

topical treatment, to the posterior fauces, and pharynx, was continued for several days, and was followed by a marked abatement of some of the more prominent symptoms ;—the difficulty of deglutition was in a good degree removed, the cough was alleviated, but the pain, and soreness, in the laryngeal cavity, were unabated.

September 9th.—In the presence of my friend, Dr. C. L. Mitchell, I cauterized the interior of the laryngeal cavity, with a solution of the nitrate of silver, of the strength of two scruples of the salt, to an ounce of water. A free expectoration of viscid mucus, followed this application ; which afforded, to the patient, great relief. She was now placed upon a tonic plan of treatment, and the topical remedies were repeated daily, for one week ; and, subsequently, every alternate day, for a week or two longer. Under this treatment, I had the satisfaction of seeing my patient restored, apparently, to good health. The cough, and the tenderness, about the larynx, subsided ; impeded deglutition was removed, and every vestige of disease about the throat, disappeared.

A few weeks since, Mrs. G. was in the city, in excellent health : she has passed through two winters, since being treated, but has had no return of the laryngeal disease.

Hitherto, ulceration of the larynx has been considered by many pathologists, as, necessarily, a fatal disease. In Dr. Porter's remarks on the

pathology of the larynx and trachea, he declares that if the mucous membrane of these parts is ulcerated, or the cartilages degenerated, the disease may be considered as totally incurable.* Dr. Thompson, also, of London, says: If the inflammation of the mucous membrane in phthisis trachealis be allowed to run on to ulceration, it is as fatal as consumption of the lungs.

In the last three cases, the symptoms were so prominent as to leave no doubt on the minds of several intelligent, medical gentlemen, who saw them with me, of the presence of ulcerations in the laryngeal cavity. In the case of several individuals, whose history, subsequently, will be introduced, the indications of this morbid condition of the parts, were still more manifest.

It has been stated that the disease of the mucous glandulæ, may be primary, and uncomplicated, and be limited, principally, to the fauces, and the pharyngo-laryngeal membrane; or, that it may be complicated with an elongation of the uvula, and, with hypertrophy and induration of the tonsillary glands. By the relation of the preceding observations, it is intended to illustrate the disease, as it appears in its uncomplicated form; although, in some of the cases which have been given, the mucous follicles of the tonsils and the uvula, have been more or less involved in the progress of the disease. To such

* Observations on the Surgical Pathology of the Larynx and Trachea By Wm. Henry Porter, p. 110.

an extent had this morbid condition of the follicles of the tonsils advanced, in the following illustrations, as to form, by the extensive hypertrophy of these glands, a prominent feature in the history of the cases.

It was stated, in a former chapter, that the tonsils were made up of an aggregated mass of mucous follicles, bound together, and surrounded by, or deposited in, cellular tissue. A morbid action is set up in these lacunæ, which being communicated to their investing tissues, a deposition of fibrinous matter takes place, that gradually becomes organized, and incorporated with the proper glandular substance, thereby increasing the size of these bodies, in some instances, to a very great extent. As all adventitious growths take on irritable or inflamed action, much more readily, than naturally organized parts, these enlargements are liable to become violently irritated, from causes of a slight nature.

Hypertrophy of the tonsils, it is well known, may be the result of various exciting causes. Repeated attacks of inflammation is most liable to terminate in an enlarged, and indurated condition of these glands. A morbid condition of the digestive organs; eruptive fevers, and a strumous diathesis have, all, been considered as predisposing, or exciting causes of hypertrophy of the tonsillary glands.

In the subsequent cases, the enlargement and

ulceration of the tonsils, arose from, or was dependent upon, a diseased condition of the lacunæ, of which these glands are principally composed.

CASE XI.

A. E. G., a merchant of Boston, aged 25, a robust and healthy gentleman, took a severe cold in May, 1842, which was followed by a dry, hard cough; pain in the chest, slight dyspnœa, and other symptoms of chronic, bronchial inflammation.

Under the treatment of a skilful physician, these symptoms subsided; but his cough never left him entirely; and, moreover, a chronic, sore throat set in, which increasing with other unfavorable symptoms, obliged him to relinquish his business, and seek for the recovery of his health, During the following year, he came to New York, and was here subjected to various plans of treatment, without receiving any permanent relief. Three or four months before my first visit to him, he had placed himself under the care of a prominent Homœopathic physician of this city, by whom he was treated up to the period at which I was called to attend him; and by whom he was assured, three days before he came under my care, that every vestige of disease was removed from his throat!

June 11th, 1844.—*Present State.*—The whole outward, or rational symptoms, manifested by this patient, are those which indicate an advanced stage

of pulmonary phthisis. He is pale, and greatly emaciated; countenance presents an anxious, and haggard expression; he has copious night-sweats; dyspnœa, and a constant, harassing cough, which is attended by a free expectoration of muco-purulent matter; the voice is thick and hoarse, and deglutition is performed with much difficulty. The dyspnœa is greatly increased whenever the patient lies down; and for many weeks, no other individual has been able to sleep in the same room with him, on account of the laboured, and stertorous breathing which is constantly present, during sleep.

The throat, on inspection, is found to be, apparently, entirely filled up with two enormously enlarged, and ulcerated tonsils, (See plate V,) between which, the uvula; which is also hypertrophied; appears wedged in, like the key-stone of an arch. No portion of the pharyngeal membrane can be seen, as the morbid mass completely blocks up the view. How respiration can be carried on, or deglutition performed, with the throat in this state, it is difficult to imagine; and still more difficult is it, to comprehend, how a learned physician, could have pronounced such a throat, to be in a healthy condition!

On exploring the chest, no morbid signs are detected, except such as indicate the presence of some degree of bronchial irritation. But there is soreness, in the region of the larynx, and pain,

which is increased by pressure over the thyroid cartilage.

This gentleman was advised, and readily consented, to submit to a prompt removal of the enlarged tonsils, and uvula. The operation was performed, and the morbid mass entirely cleared from the obstructed arches. After clearing the isthmus faucium, the mucous lining of the pharynx could be seen, injected, its follicles enlarged, and in an ulcerated condition, at many points along its posterior wall.

June 13th.—Since the operation, the patient has slept quietly at night, and appears greatly refreshed, by the rest thus obtained.—Cauterized the pharynx, and the glottis, with a solution of the crystals of nitrate of silver, of the strength of two scruples, to the ounce of distilled water; the Iodide of Potassium was exhibited in five grain doses twice a day; and, for the cough, the following mixture was ordered:

℞. Tr. Sanguinariæ,
Tr. Actæa racemosæ, āā ℥j.
Morph. Sulph. gr. iv.
M. Capiat gutt. xxv—xxx. bis ter ve in die.

15th.—Again cauterized the pharyngeal membrane and the upper part of the larynx: The above remedies to be continued.

This plan of treatment, in connection with constitutional means, was pursued, until the 15th of

July, when the topical remedies were omitted, and the patient directed to employ, twice a day, the following gargle :

℞. Argent. Nitrat. gr. xv.
Aquæ Rosæ, ℥iv.
M. Pro gargarism.

At this period, the cough and night perspirations had subsided ; all soreness and irritation in the throat, had disappeared, and the patient was, evidently, gaining in flesh and strength. On the 8th of July he left for the country, where he remained until the 16th of August, at which time he returned to the city, in good health.

In the preceding case, the pharyngo-laryngeal affection may, in some respects, be considered as having been complicated with bronchial disease ; but the inflammation of the bronchial vessels, which, undoubtedly, had existed, to a considerable extent, in the earlier stages of the disease, was not present when the patient came under my care. The effect, however, of the inflammation was still remaining ; and this consisted in a dilatation of some of the bronchial tubes. This alteration of structure had led to a great error in diagnosis ; for, misled by the external, or rational signs ; the emaciation, and dyspnœa ; the night-sweats, and the free, muco-purulent expectoration, of the patient, several physicians, both in this city and Boston, who had examined the case, had mistaken the bronchial dilatations for tubercular cavities, and

had pronounced it to be one of confirmed phthisis. That it was not tuberculous disease, time has proved, by establishing the permanency of the cure. It is now over two years since this patient was under treatment; during this period he has passed through two severe winters, in which he was constantly engaged in business; and yet he has been, and still remains, in excellent health.*

* This case, after it was drawn up, was seen by my friend, Dr. A. L. Cox, of this city, who returned it, with the following note:—"Here I would humbly remark, that the facts present no such proof whatever; since recoveries from tuberculous phthisis, have occurred, beyond all doubt, and, in my opinion, the gentlemen were probably right in their diagnosis.

"All that is requisite, to establish this position, is to prove, that patients do occasionally recover their health, who have tubercles. The case of my preceptor, the late Dr. Parrish, of Philadelphia, is in point. He had tubercles at about twenty years of age. In 1823—his health having then been good for twenty years—he informed me of his case; and said that such was the prejudice of medical men, that they would listen to no facts, or arguments, on the subject; and that he did not speak of it, as it only made them laugh. The Doctor requested me, if in my power, at the time of his death, to be present at the autopsy, and to bear witness to the conversation then passing.

"He died, somewhere about 1840—I was not present at the post-mortem, being in this city. But several gentlemen of the first respectability, in his own city were there, and they bear testimony to the fact, that several tubercles, in the summit of both lungs, existed, in an indolent condition, from which, for more than thirty years, he had felt no inconvenience whatever; and his final sickness had no connection with the original disease. I therefore demur from the conclusion that because your patient recovered, he could not have had tubercles."

CASE XII.

S. S., aged 28, a gentleman from Pittsfield, Ms., came to New York for medical aid, January 31st, 1843. For more than five years, he had suffered under an affection of the throat, for the relief of which, most of the ordinary remedies had been unavailingly employed. He had, also, been subjected to Homœopathic treatment, for a period of six months, under a practitioner of this character, at Albany; and with as little benefit to the patient, as had occurred to the individual, in the preceding case. The disease was first manifested by a slight pain and soreness, in the throat; symptoms, which were increased by exposure to cold, and by exertions of the voice; a cough, and hoarseness came on, and, at length, the voice, at different periods, became almost extinct.

Present State.—The patient is feeble and emaciated; the voice hoarse and unnatural, being reduced, at times, to a rough whisper. He complains of pain, and of a pricking sensation in the throat; the patient has suffered long under a harrassing cough; there is difficulty of deglutition, and respiration is evidently obstructed in the upper air-passages. An inspection of the throat and air-passages reveals an extremely diseased condition of these parts. The tonsils are greatly hypertrophied; all that part of the throat which can be seen, is studded with enlarged and ulcerated fol-

licles; the epiglottis is œdematous, and the pricking pain and tenderness, below the os hyoides, the marked change in the character of the voice, and the dry and harsh cough, denote a highly diseased state of the parts, within the larynx. Respiration appears normal, and the chest, on percussion, sounds well.

The enlarged tonsils, were excised; and, on the second day after the operation, the topical application of a strong solution of the crystals of nitrate of silver, was employed; the patient was directed to take the Iodide of Potassium, with the extract of sarsaparilla, twice, during the day; and the tinct. of sanguinaria, and laudanum at night, to allay the cough. Appropriate, constitutional remedies were conjoined with these means; and, under this plan of treatment, he gradually improved; the cough, and ulceration of the throat, subsided; the natural resonance of the voice returned; and along with the disappearance of the local difficulties, there was a corresponding improvement in his general health.

Follicular Disease, complicated with Elongation of the Uvula.

The uvula, it will be remembered, is abundantly supplied with mucous cryptæ, which are especially large and numerous, towards its inferior extremity. In follicular disease of the throat, the mucous

glands of the uvula seldom remain long, unaffected. Hence, wherever the affection has existed, for any considerable period of time, elongation, or hypertrophy of the uvula, dependent, primarily, upon a diseased condition of its follicles, will be found to be present, to a greater or lesser degree, in a large majority of the cases. The result of this morbid action may be, either a simple prolongation of the mucous and cellular tissues, which invest the uvula; or, an elongation or hypertrophy of its muscular substance. In the former alteration, the tissues being extended beyond the muscular portion of the uvula, form, at its extremity, a kind of sac, into which an effusion of serous matter takes place, causing simple elongation of this organ. In the latter morbid condition, there is an infiltration of serous, or fibrinous matter, in the cellular tissue, by which the uvula is gradually enlarged; and, in some instances, elongated to such an extent, as to produce most serious irritation about the epiglottis, and upper portion of the respiratory tube. Dr. Stokes, in his interesting work, on Diseases of the Chest, after enumerating various, milder forms of symptoms, which he has observed to result from this chronic, organic lesion, declares, moreover, that he has seen cases, presenting all the usual symptoms of phthisis; except the physical signs; such as cough, puriform and bloody expectoration, hectic, emaciation, and quick pulse, which were produced by relaxation and elongation of the

uvula, and, in the treatment of which, the ordinary means, either altogether failed, or were but partially successful.*

The following cases are illustrative of some of the preceding remarks.

CASE XIII.

August 24th, 1842.—I was requested to see M. T., aged 26; a country merchant, who had come to the city, for the double purpose of procuring medical aid, and of purchasing his stock of goods.

For about a year, he had been labouring under a troublesome affection of the throat, the symptoms of which had greatly increased within the few months which preceded his visit to New York. His throat, during this period, had been constantly sore, but his general health appeared to have suffered but little, from the disease. He complained of an incessant, and most teasing irritation at the upper portion of the larynx, which induced some cough, and caused a constant inclination to clear his throat by hemming; whereby he expectorated, with much difficulty, a tenacious, viscid mucus. On inspecting his throat, the cause of the difficulty was quite apparent. The follicles were enlarged; the whole mucous lining of the fauces was injected

* A Treatise on the Diagnosis and Treatment of Diseases of the Chest. By Wm. Stokes, M.D., &c. pp. 230–1.

and œdematous; and the uvula was enlarged and elongated, to a very great extent; hanging loosely from the septum; its muscular fibres being destitute, apparently, of all contractile power.

The remedy, in this case, was as obvious as the cause. The uvula was removed, and a few applications of the nitro-argentine solution, were made to the fauces, and pharyngeal membrane. The relief which followed these measures, was prompt, and effectual; the teasing cough, and irritation about the throat disappeared; and, as I learned a year after this treatment, there was no return, whatever, of these unpleasant symptoms.

CASE XIV.

J. V., the Captain of one of our River steamboats, had suffered for several years, under disease of the throat; which, besides affecting unfavorably, his general health, had so changed the character of his voice, as greatly to interfere with, and, at times, to interrupt, altogether, the discharge of his duties as commander of his vessel. Besides the hoarseness, with which he was affected, there was present, a constant soreness and irritation in the throat; symptoms that were often increased by the exposures to which he was subjected by his profession. But what alarmed him more than all this, was the frequent occurrence of a sense of suffocation, which would suddenly seize him, when

lying in a horizontal position; causing him to spring, quickly, to an erect posture, by which, alone, he was relieved from a sense of immediate suffocation. Alarmed by these symptoms, and unable to divine the cause of them, he was induced to seek for medical assistance.

On inspecting the fauces, I found the throat exhibiting that granulated and cavernous appearance, which is often present in those cases, where follicular disease has burrowed, for a long period, about the pillars of the fauces, and in the tissues of the pharynx. But what gave me the most surprise, was the enormously enlarged, and elongated uvula, (See plate IV.) which was hanging in the Captain's throat, with its extremity lying on the back of the tongue. It was over two inches in length, and at its largest diameter, nearly half an inch in thickness! The cause of the patient's most distressing symptom, was now apparent. When lying upon his back, the elongated uvula would hang before the opening of the glottis, and in the act of inspiration, its extremity would, occasionally, be drawn into the aperture, producing that suffocating sensation, with which the patient had been so frequently annoyed.

The operation, for the removal of this morbid growth, was immediately performed. This was followed by the exhibition of topical and general remedies, as in the preceding cases of pharyngo-laryngeal disease; under the employment of which,

the cough, the irritation about the throat, and every other symptom of laryngeal disease, rapidly disappeared, and the Captain, in a few weeks, was enabled to resume, and, ever since, has been occupied in the discharge of his official duties.

The following case is of interest, inasmuch as it illustrates the morbid effects that may be produced by an elongated uvula, in the absence of all other exciting causes:

CASE XV.

In 1841, E. B., aged 26; a merchant of this city, suffered, severely, from follicular laryngitis. During this year he left the North, and spent a part of the inclement season in one of the Southern States. But his disease continuing to increase, he came back to New York, and, after his return, placed himself under my care. At this time, there was debility, loss of flesh, with cough and hoarseness, and a constant irritation about the throat; an examination of which, revealed an extensively diseased condition of the follicles of the fauces, and of those of the pharyngeal membrane. His uvula was moderately elongated, but not to that extent that seemed to require excision.

Under the use of those topical, and general remedies which are comprised in the plan of treat-

ment that was employed in many of the preceding cases, this patient was restored to a good degree of health; the hoarseness and soreness of his throat, disappeared; the mucous membrane assumed a healthy appearance; and he regained strength and flesh, so that he was enabled, again, to attend to his business. His cough, however, never left him, but, on the contrary; notwithstanding the employment of many of the ordinary remedies, for its removal; continued to increase, and was attended, after a while, with a free expectoration of muco-purulent matter. The occurrence, at length, of erratic pains about the chest, with debility, and other unfavourable symptoms, led the patient and his friends, to apprehend the presence of confirmed, pulmonic disease. At this crisis; after having resorted to various, remedial measures, without benefit, I proposed the excision of the patient's uvula; which, although but moderately elongated, was, evidently, a source of irritation. To this the patient acceded; the uvula was removed; and, from that hour the cough ceased, the pain in the chest, and every other indication of thoracic disease, which had been present, soon passed way; and from that hour to the present, the patient has been free from all pulmonic disease.

Had this cause of irritation been suffered to remain, there can be little doubt, that an organic disease of the lungs, would have been developed,

which, ultimately, would have proved fatal. A confirmation of this opinion will be found in the following case which is related by Dr. Morton.*

CASE XVI.

A gentleman who, for several months, had been harassed with a dry cough, and whose uvula was greatly elongated, applied to me for relief. I removed his uvula, and the cough ceased entirely. This was three years ago. He died in August of the present year, of inflammation of the bowels, and as his family requested an autopsy, I availed myself of the opportunity of examining his lungs: the right lung, especially towards the apex, contained a great number of these granulations (*tuberculoid*) in the diaphanous state, but no tubercles, and the parenchyma was healthy. The left lung contained a few of the same bodies.

There can be little doubt but that these substances were remains of vesicles inflamed and filled up during the catarrh of which I have spoken. Had the catarrh been suffered to proceed, the ganulations would have been developed in proportion, and their extensive accumulation would have constituted that state of the lungs which Bayle designated by the specific name of *granular phthisis.*

* Illustrations of Pulmonary Consumption. By S. G. Morton, M.D., p. 25.

Follicular Disease, Complicated with Laryngitis.

In most cases of follicular disease of the throat, the inflammation, in its earlier stages, is limited to the mucous cryptæ of the pharyngo-laryngeal membrane. In some instances, however, after the disease has continued for a longer or shorter period, the lining membrane may become involved in the morbid action, and we shall then have, supervening upon the original, glandular disease, an inflammation of the intervening mucous tissue; or follicular disease, complicated with chronic laryngitis.

The following cases are offered as examples, which illustrate this complicated form of the affection:

CASE XVII.

In September, 1841, I was called upon by a young clergyman, from one of the New England States, who, for the last two years, had laboured under an affection of the throat, which, at length, had incapaciated him, entirely, for the performance of all public duties, and had even rendered him incapable of reading aloud. Three weeks before the above date, he had returned from a sea voyage; having been absent for several months, for the purpose of regaining his health. Six, or eight weeks before he came under my care, and while at sea, he observed that the back part of the throat

was becoming more inflamed ; and the epiglottis could be seen projecting above the back of the tongue, and presenting a highly inflamed appearance. After he landed, a physician was called who bled him, and applied cups to the neck, which reduced the inflammation, and afforded him temporary relief.

September 11th.—*Present State.*—The patient's general health seems but little affected. He is not emaciated ; his appetite is good ; and he manifests no hereditary tendency to pulmonary disease, but his throat appears extensively affected. The muscular parts about the fauces, and over the cervical vertebræ, are wasted away, and the cavity of the throat is very large ; the lining membrane of these parts is covered with tubercles, or enlarged, and diseased follicles ; while the intervening, mucous membrane is injected and inflamed ; the epiglottis can be seen projecting above the back of the tongue, its investing membrane looking red, and vascular ; the voice is rough, and hoarse ; there is heat and dryness of the throat, present, with pain in the laryngeal region, which is increased by every exertion of the voice, and on pressing the larynx against the spine.

This patient was directed to give the organs of voice, entire rest, to use mucilaginous drinks and low diet, and to take, night and morning, one of the following powders :

℞. Hydrarg. chlorid. mitis gr. xxv.
Opii pulv. gr. iv.
Misce. et in pulveres decem divide.

These powders were continued, as above, until the mineral had produced, in a slight degree, its specific effect. This condition being established, in the course of a few days, the calomel was omitted; the patient was put upon a free use of the iodide of potassium, and the fauces, the pharyngeal membrane, and the glottis were freely cauterized with a solution of the crystals of nitrate of silver.

Under this plan of treatment, the patient rapidly improved; and in less than two weeks after commencing the employment of the topical remedies, he tested the ability of his voice by reading through one of Shakspeare's plays, aloud. He soon recovered, and returned to the discharge of his official duties.

Follicular Disease of the Air-passages, Complicated with Chronic Bronchitis.

More, perhaps, than with any other morbid condition of the respiratory apparatus, is follicular disease complicated with a catarrhal condition of the bronchial tubes.

Of the large number of cases, of disease of the mucous glandulæ, which, from time to time, have

come under my observation, more than one half of them, have been conjoined with, more or less, of bronchial irritation. In a large proportion of these cases, the latter affection has been secondary; or, has supervened upon the primary, glandular disease. Commencing in the upper part of the air-passages, follicular laryngitis may exist, independent of any inflammation of the bronchial membranes. Ordinarily, however, the morbid action is communicated, sooner or later, to the surrounding, mucous tissue, and, in this way, the irritation may be extended into the bronchi and their ramifications.

In the above, complicated form of the disease, the cough, which is generally present, is attended by an expectoration of transparent, adhesive mucus. As the disease advances, this discharge increases in quantity, and is characterized by the presence of opaque, or albuminous matter, commingled with the more transparent, liquid mucus. The constant presence of this latter, heterogeneous, or muco-purulent expectoration, is the test which Andral has given, of the existence of chronic inflammation of the mucous lining of the bronchial tubes.

From the above number of cases I shall select the following, to illustrate this complicated form, of *follicular bronchitis.*

CASE XVIII.

C. E. H., thirty years of age, a gentleman of this city, engaged in an extensive mercantile business, began to suffer under an affection of the throat, in the fall of 1842. The disease commenced with the ordinary symptoms—with slight pain and soreness in the throat; constant irritation in the larynx; and a hoarseness, which was increased at night, and after any unusual exertion of the voice. These symptoms, which were greatly aggravated during the following winter, became considerably mitigated in the summer months. The return of cold weather, however, in the fall of 1843, aggravated all his unfavorable symptoms. At the advice of his physician and friends, he now relinquished his business, and sailed for Santa Cruz, where he spent the following winter: but his health was but very little improved by his residence on this Island. On his return to New Orleans, in April, 1844, his hoarseness and cough, increased; and he there had an attack of hemoptœsis, which continued for several days. Returning to New York, in May, he spent the summer months in this city; but his health did not improve, as it had done, during the warm season of the preceding year.

When this gentleman came under my care, the 11th of September, his case presented the following points: There was considerable emaciation, with debility and night-sweats; and a severe

paroxysmal cough, attended by an expectoration of opaque, or yellowish sputa, which were occasionally streaked with blood. There was slight dullness, on percussion, at the summit of the left lung; and mucous ronchi were detected near the middle, and at the base of both lungs. The throat bore the appearance of having been long affected by follicular inflammation; the pharyngeal membrane was injected, its follicles, and those of the tonsils, diseased, and in some places, were destroyed by ulceration; the uvula was elongated; the voice was hoarse; and the patient complained of a constant irritation, at the bronchial division of the trachea.

As the diseased uvula was considered a source of irritation, its elongated portion was removed.

September 13th.—Topical remedies to the throat were employed—the pharyngo-laryngeal membrane being freely cauterized, by a solution of argent. nitratis crystalli—and the patient was ordered to take, night and morning, one of the following pills:

℞. Hydrarg. chlorid. corros. gr. iv.
Extract conii 3ss.
Extract Beladon. gr. x.
Misce. In pil. xxx. dividend.

The iodide of potassium was, also, exhibited, in full doses, during the day.

18th.—During the severe paroxysm of coughing last night, blood was again expectorated, and the

sputa to-day are tinged with the same. The topical remedy was again employed; the antimonial ointment was directed to be applied to the cervical portion of the spine; and the patient was ordered the following expectorant:

℞. Tinct. Sanguinariæ, ℥iss.
Tr. Opii, ℥ss.
Ol. Gaultheriæ gtt. x.
M.

Twenty-five drops to be taken on going to bed, and the same number twice during the day.

The application of the nitrate of silver to the fauces, and the pharyngo-laryngeal membrane was repeated, on each alternate day, and the above remedies continued up to the 27th, when the patient expressed himself greatly relieved. His cough was much less troublesome; the night-sweats had ceased; and the soreness and irritation in his throat had nearly subsided. The pills were now omitted; the expectorant, and the hydriodate of potash were continued, and the following tonic mixture was ordered:

℞. Extract. conii, ℥j.
Sesqui oxydi ferri, ℥ij.
Syripi tolutan.
Tinct. Cinch. āā ℥j.
Aq. font. ℥ij.
M. Cap. coch. parv. ter in die.

After the 27th of September, the topical remedy was employed, every third, or fourth day, only, for three weeks longer, when the patient's throat

presented no appearance of follicular disease, whatever; his cough and hoarseness, had entirely left him, and he was regaining, rapidly, both his strength and flesh;—having added four pounds to his weight, during the above three weeks.

On the third of November, following, I, again, explored his chest, but, at this time, could detect no sign of bronchial irritation, nor any other evidence of thoracic disease.

March 7th, 1845.—Saw this day, my patient, at his counting-room in Front street, having every appearance of being in the possession of robust health. He has passed through a severe winter, without experiencing any return of a laryngeal, or bronchial disease, notwithstanding he has been much exposed, from having been, during the last three months, constantly engaged in an active business.

CASE XIX.

Severe Case of Bronchial Disease, Consequent upon, and Complicated with, Follicular Laryngitis.

Mr. H. S., aged twenty-five, an intelligent gentleman from Worcester, Co., Massachusetts, came to New York, for medical assistance, in November, 1844.

Three years before, in 1841, he was seized, without any perceptible cause, with irritation in the throat; soon followed by hoarseness, loss of voice, and other marked symptoms of laryngeal

disease. For many months, before this attack, he had been in excellent health; had perceived no difficulty about his throat until one day, in attempting to answer a question, he found himself, suddenly, unable to articulate, except with great difficulty. From that time, he perceived a constant irritation in his throat; his voice became permanently hoarse, and was, soon after, reduced to a rough whisper. A cough now set in, which continued severe, through the winter; and, being attended with a free expectoration, with wandering pains about the chest, and other indications of thoracic disease, it alarmed him and his friends, and he was advised, before the return of another cold season, to make a sea-voyage, and spend the winter months in some milder climate. He sailed for Havre; travelled somewhat during the autumn, and spent the winter in the South of France. But little improvement, however, was effected by this change of climate; so that, he returned in the following year, in almost the same condition, in which he was, when he left home.

His case, in coming under my care, (November 3d, 1844,) presented the following symptoms: There was pallor, with debility, and loss of flesh; his voice was reduced to a rough whisper, or, when considerable effort was made, could be uttered in hoarse, broken sounds; pressure over the thyroid cartilage, produced pain, and caused cough. The cavity of the posterior fauces was very large, and

was studded with hypertrophied, and ulcerated follicles; the epiglottis, and the edges of the arytenoid cartilages, seemed œdematous to the touch; a condition which arose, probably, from a thickening of their mucous lining. The patient had suffered, for many months, and was still labouring under an harassing, paroxysmal cough, which was especially severe, on lying down at night, and on rising in the morning; and was attended with a free expectoration of viscid phlegm in which compact masses of opaque, muco-purulent matter were suspended. On examining the chest, the right side sounded clear, on percussion, but respiration was slightly faint; a dull sound was elicited by percussion, over the apex of the left lung, and mucous ronchi were heard at its base and middle portion.

These were the principal, morbid signs that could be detected; but fearing, from the many other unfavorable symptoms which my patient presented, that his lungs were tuberculous, I requested a medical friend, who has had extensive experience as an auscultator, to examine his case: The following are the memoranda which he made: Respiration, faint at the apex of right lung; clear, lower down; slight, mucous râle in the inferior and posterior part of right lung. Left lung—respiration faint at its summit, with large mucous râles distinct; sonorous râles, after coughing; mucous râles in the lower, posterior part of the left

lung. Percussion gives slight flatness under the left clavicle.

These morbid signs, together with the above, laryngeal symptoms; viewed in their most favorable aspect, indicated follicular laryngitis, complicated with extensive, bronchial disease, and with dilatation of the bronchial tubes.

Commenced the fifth of November with the use of the topical remedy; and having freely cauterized the posterior fauces and epiglottis, on the following day I passed a small sponge, saturated with a strong solution of the crystals of the nitrate of silver, into the aperture of the glottis. Of the following pills the patient was directed to take one, night and morning:

℞. Extract. Hyosciami, ʒj.
Hydrarg. chlorid. mitis, gr. xxx
Opii pulv. gr. iij.
Fiat massa, in pilulas viginti dividenda.

These pills, together with daily cauterization of the pharyngo-laryngeal membrane, were continued until the twelfth; when symptoms, indicating the presence of slight mercurialization arising, the pills were discontinued. The patient was now put upon the use of the iodide of potassium; general tonics were exhibited, and the topical, remedial measures, to the pharynx, and glottis, were continued. This plan of treatment was persevered in, for several weeks, before any marked improvement in the patient's symptoms, was apparent.

On the 30th of the month; twenty-five days after the commencement of the use of topical remedies, the patient expressed himself "able to speak much easier;" there was less huskiness of the voice; his cough was mitigated, and a marked improvement in his general health was manifest. Some cough and bronchial irritation still remaining, counter-irritation, by means of the external application of antimonial ointment, over the sub-clavicular region, of each side, was employed; and the applications of the nitrate of silver were continued until the eighth of December. By this time, all evidence of disease about the throat had disappeared; there was neither pain or irritation felt within the larynx, and the lining membrane of the fauces and of the pharyngeal cavity, as far down as could be seen, presented a smooth, and healthy appearance.

About this time my patient left the city, for his home; and as there still remained some cough, and huskiness of the voice; a symptom depending, probably, upon a thickening of the mucous membrane of the vocal ligaments,—he was directed to take the proto-iodide of iron, and to apply externally to his throat, the following irritant:

℞. Ol. Tiglii. gtt. xxv.
Spir. ætheris sulph. ʒj.
Misce.

A few weeks after his return home, I received a letter from him, informing me of his continued

improvement; that he had regained six pounds of flesh in four weeks; that his voice was clearer; and that he had full expectation of being restored to good health.

Several months later; after having passed through the winter; the accounts received from him are still more favourable; vocalization has been re-established, and his health, in a good degree, restored.

Follicular Disease of the Air-passages, Complicated with Phthisis Pulmonalis.

A diseased condition of the follicles of the tonsils, and of those of the pharyngo-laryngeal membrane, is a frequent concomitant of tuberculous affection of the lungs. But this disordered state of the mucous glandulæ of the air-passages, although often conjoined with thoracic disease, is not, in all cases, the sequent of pulmonic affection: on the contrary; a morbid condition of these follicles is, in many instances, the antecedent, and tends, directly, especially in individuals of a strumous diathesis, to awaken tuberculous disease of the lungs.

M. Louis, I am aware, from having found ulceration of the larynx in one-fourth part of the cases of phthisis, which he examined; and having observed the absence of this alteration of structure, with very few exceptions, in a large number of non-tuberculous patients; was led "to regard

ulcerations of the larynx, more especially those of the trachea and epiglottis, as lesions proper to phthisis;"* and, when occurring, as supervening, in all cases, upon tubercular disorganization. Laennec,† on the contrary, declares, that this developement [ulceration] is of frequent occurrence, on the tracheal membrane, in persons exempt from pulmonary phthisis. Mr. Porter, also, in his "Observations on the Surgical Pathology of the Larynx and Trachea," speaks of cases where extensive ulceration of the trachea had terminated in cicatrization. After recovery, in one instance, the patient lived upwards of a year, in the enjoyment of good health; but dying at length, of another disease, dissection revealed an extensive but perfect cicatrix, situated in the upper portion of the trachea

As a general rule, however, the conclusion to which Louis arrived, is correct: Ulcerations of the mucous membrane of the larynx and trachea are seldom observed except in connection with tuberculous disease; but ulceration of the follicles of this membrane are occurring, frequently, as I have had occasion to show, independently of phthisis. This morbid condition of the glandulæ will also be found, in many instances, conjoined with pulmonary lesions. When co-existing with tubercular phthisis, the cough, the dyspnœa, and all the characteristic symptoms of this latter disease, are

* Researches on Phthisis, &c., p. 46

† De l'Auscultation Mediate 2 ème edit. to i. p. 267.

greatly aggravated, and the affection passes through its stages, and reaches its fatal termination, much sooner, ordinarily, than when its progress is unattended with follicular disease of the pharyngo-laryngeal membrane.

Although but little can be expected, from any attempt made to prevent the final *denouement* in these cases where disorganization of the lungs has occurred, yet, in many instances, the harassing cough, the difficulty of deglutition, and the dyspnœa, which are often present, in this combination of discase, are signally relieved, and the sufferings of the patient greatly mitigated, by the employment of topical medication, upon the diseased, laryngeal surface. So marked, indeed, has this relief been, in some cases which have fallen under my observation; even when tubercular cavities have been present; as to awaken in the minds of the patients, and their friends, strong hopes of their final recovery. In other instances—and these have been, not a few—where follicular laryngitis has preceded thoracic disease, I have seen the symptoms of incipient pulmonary affection, rapidly disappear after the removal, by topical medication, of the primary, follicular disease.

In the following highly interesting case, the symptoms, it will be observed, resembled, in a striking manner, those manifested in case No. VI., which I have abridged from Ryland, where a post-mortem revealed an extensive ulceration of the

cavity of the glottis, and of the ventricles of the larynx; and also, a destruction, from the same cause, of the superior margin of the epiglottis.

CASE XX.

Mr. B., aged thirty-eight; a merchant from Mobile, came under my care, about the middle of October, 1844.

For several years he had complained of an irritation of the throat, which was attended with a slight cough, and an occasional hoarseness; symptoms, which were disregarded until last January, when, after taking a severe cold, they were all greatly aggravated; the voice became constantly hoarse; there was soreness and heat in the laryngeal cavity; the cough increased, and was attended by an expectoration of viscid mucus, and, occasionally, with hæmoptysis.

In September, following, this gentleman came to New York, and was under medical treatment several weeks, before I saw him, without any alleviation of the unfavorable symptoms.

October 19th.—*Present State.*—His voice is extremely hoarse and uneven; at times, nearly extinct; there is a constant pain, and a pricking sensation in the region of the os hyoides; deglutition is accomplished with the utmost difficulty; indeed, for several weeks, the patient has been able to take liquids, only, and the swallowing even

of these, is attended with so much pain, that, although enjoying a good appetite, he is disposed to forego, as far as possible, the use of food. There is one peculiarity in Mr. B.'s case: he cannot take his food by the spoonful; whenever he attempts this, the liquid is rejected, instantly, through the nostrils; but he is able to drink it in a continual stream, until he arrives at the last swallow, when it produces a feeling of suffocation, and is rejected with violence!

He has severe and spasmodic fits of coughing, which occur, frequently; and are attended by a viscid, mucous expectoration; his cough has that peculiar cracked, or whistling character, which, according to Louis, is indicative of ulceration of the chordæ vocales. There is dyspnœa, with considerable emaciation, present, and the patient complains of having profuse "cold sweats" at night.

On inspecting the fauces, the pharyngeal membrane is found marked with patches of ash-coloured ulcerations, intermixed with prominent granulations, or enlarged mucous follicles. The epiglottis is thickened, and its superior margin eroded by ulcerations; considerable œdema can be distinguished about the lips of the glottis, by which the opening into the larynx is sensibly diminished. The uvula is elongated, and its pendulous extremity is studded with diseased follicles, by which it is greatly enlarged.

The diseased portion of this organ was imme-

diately removed; and, on the second day after truncating the uvula, the fauces, the posterior wall of the pharynx, and the opening of the larynx, were freely cauterized with a strong solution of the crystals of nitrate of silver. The patient was directed to use the following solution:

℞. Potass. iodid. ʒijss.
Tinct. cardamom.
Aquæ distil, āā ʒij.
M.

A desert spoonful to be taken twice, daily, in an equal amount of compound syrup of sarsaparilla; the antimonial ointment to be applied over the cervical part of the spinal column; and, night and morning, one of the following pills was ordered:

℞. Extract. Hyosciami. ʒj.
Hydrarg. chlorid. corros. gr. iv.
Misce. fiant pilulæ triginta.

It was found necessary to apply the topical remedy, for several days, to the laryngeal surface of the epiglottis, and to the lips of the glottis, before the sponge could be introduced into the larynx; as the size of the opening into this cavity was diminished by the œdema of the parts. On the 25th, the glottis was entered, and the interior of the laryngeal cavity, was freely cauterized with the nitro-argentine solution.

In the course of a few days, the improvement was decided; the cough and hoarseness were greatly diminished, and the patient could take his food, with much less pain, and without any of that

rejection of the liquids, which had occurred in attempting to swallow, before the topical remedies were employed.

It will be unnecessary to follow out the details of the plan of treatment pursued in this case: cauterization of the fauces, glottis, and cavity of the larynx, was continued every day, or each alternate day, for several weeks; counter-irritation over the superior portion of the spinal column, was kept up, and along with the alterative remedies, prescribed at the commencement of the treatment, the patient was put upon the use of general tonics.

Under this plan of treatment, the improvement of his health was marked and rapid. By the last of October he was able to swallow solid food without pain, or inconvenience; his strength increased; his voice was improved; and before he sailed for Mobile, which was in November, he had regained several pounds of flesh, whilst every evidence of ulceration of the throat had disappeared; and all this mitigation of the disease took place, notwithstanding the symptoms which have been enumerated,—in connection with the morbid, physical signs, which auscultation revealed,—indicated the presence of extensive, tuberculous disease of the lungs. These latter indications increasing, after he left New York, he died, not long after his return to Mobile, of pulmonary phthisis.

In the subjoined case, topical medication was employed under circumstances, and at a stage of the disease, which precluded all hope of deriving any permanent benefit, from this measure. The case is introduced as an additional illustration of the influence of topical remedies in relieving the difficulty of deglutition, and in mitigating the harassing cough, which are often present, in follicular laryngitis, complicated with pulmonary consumption.

CASE XXI.

J. A. B., of New York, aged forty; had suffered for several years, preceding 1843, from sore throat. The affection would nearly disappear when the summer was present, but would return on the approach of autumn, and continue during the winter months. In August, 1843, when bathing at Rockaway, he contracted a cold which affected his throat, more severely than ever. He soon became hoarse; there was slight pain in the throat; some difficulty of deglutition, and a constant irritation, at the top of the larynx. These unfavorable symptoms continuing to increase, on the accession of cold weather, he sailed for Europe, where he remained, in England and on the Continent, seven or eight months; but returned to New York, in the latter part of the summer of 1844. During his absence, he consulted several eminent, European physicians,

by one of whom, his uvula, which had become greatly elongated, was removed. After his return home, he placed himself under the care of a Homœopathic physician, by whom he was treated up to the time when I was called to see him.

November 29th, 1844.—*Present State.*—The patient manifests all the usual rational, and many of the physical signs, of confirmed phthisis. There is present great feebleness, emaciation, hectic, and night-sweats; and the signs developed by an exploration of the chest, indicate the presence of tuberculous disorganization in the apices of both lungs. The throat, on inspection, presents a highly diseased, and cavernous condition; the muscular fibres on the posterior wall of the pharynx, being wasted away by the long-continued disease; the mucous follicles of the fauces, and of the pharyngeal membrane are hypertrophied, and many of them in an ulcerated condition. The epiglottis is also ulcerated, along its superior border; and, moreover, is greatly expanded, presenting that singularly thinned, and elongated form, which Dr. Stokes* terms the "leaf-like expansion," or the "battle-door" shape of the epiglottis; a lesion which, in a case he has recorded, coincided "with double perforating ulcers of the ventricles." The patient experiences constant, pricking pains in the larynx; his voice has a peculiar cracked, or uneven

* A Treatise on the Diagnosis and Treatment of Diseases of the Chest. By William Stokes, M.D., p. 217.

character, and at times it becomes quite extinct. But his greatest suffering arises from the severity of his cough, and the great difficulty which he experiences whenever any attempt is made at deglutition.

To palliate these distressing symptoms, which were dependent for their unusual severity, upon the manifest ulceration of the epiglottis, and the larynx; I determined to apply topical remedies to these diseased parts. A solution of the nitrate of silver, of the strength of forty grains of the crystals to an ounce of water, was, accordingly prepared, and the epiglottis, and the interior of the larynx, was freely cauterized, with this preparation. On withdrawing the sponge, it was found to be loaded with purulent matter; and this occurred at each time, until several applications had been made. But the good effect of the topical treatment soon became apparent; after a few applications, the *tussis ferina* was changed into, comparatively, a mild cough; the patient became able to swallow his food without difficulty; and, indeed, remained relieved of these distressing symptoms, while he continued to live;—for the disease of the lungs, necessarily, passed on to a fatal termination.

Permission was not obtained to examine the body.

CHAPTER V.

Malignant Follicular Disease of the Œsophageal Tube.

All pathologists agree, that the œsophagus is remarkably exempt from structural disease. It must be admitted, however, that our knowledge of the diseases which do occur in this tube, is still very imperfect.

A great deal remains to be investigated, before their pathological history, and diagnosis, can be correctly established.

Indemnity from disease, in the œsophagus, is attributed, in part, to the peculiarity of its organization. Its mucous membrane, is less vascular than that of the air-passages, and is, moreover, defended by a thick epithelium which extends beyond the cardiac orifice of the stomach. The follicles of the œsophagus are less numerous, than are those of the larynx and trachea; and, besides, they are deeply imbedded in the sub-mucous tissue; while their excretory ducts pass obliquely through the mucous membrane of the œsophagus, and open upon its surface, in such a manner, that particles of the food, —as the morsel is swallowed,—are prevented from finding their way into the cavities of the glandulæ.

Hence, idiopathic disease, affecting primarily these follicles, is, of comparatively rare occurrence. But a morbid action, which has its origin in the glands of the fauces and pharynx, is, not unfrequently, extended, by continuity, to those of the œsophageal membrane, where it often manifests a marked tendency to assume a scirrhous, or a malignant form.

This cannot be better illustrated than by an exhibition of the following cases :

CASE XXII.

March 18, 1839.—I was requested to meet, in consultation, my friend, Dr. A. G. Smith, in the case of Mrs. A., aged 62 ; a lady of this city, who, for many months, had been labouring under a stricture of the œsophagus.

The disease had existed for several years. In the early stage of the disorder, she had complained, for a long period, of soreness and irritation in the back of the throat ; accompanied, at times, with a "burning sensation," and with some difficulty in swallowing. For a long time, however, this latter difficulty was slight, but for several months antecedent to the period of this, my first visit, the patient had been able to swallow liquids, only, and these, even, in the smallest quantities. On inspecting the throat, its cavity was found enlarged, while the mucous lining of the fauces and pharynx, was pale, and its surface rough with granulations.

Situated on the side of the neck, there was, also, at this time a small tumor occupying the space between the cornu of the os hyoides and the thyroid cartilage. This tumor had existed for many weeks; but it had been observed of late, by the patient, and her attendants, to have increased in size, and along with this enlargement, there had been a correspondent increase, in the difficulty of deglutition. At times, whole days would pass, during which the patient would not be able to swallow a particle of food, either in a solid or liquid state; the consequence of this, was great debility, with considerable emaciation of the body.

This was her condition, at the time when I first saw her. On several previous occasions, Dr. Smith had succeeded in passing a small bougie, down the œsophagus, and, in each instance, this operation was followed with an ability to swallow a small amount of liquid food. At this time, there was introduced, with some difficulty, a bougie, about four lines in diameter, and this was immediately followed with the introduction of one, two sizes larger. The patient, who had been unable to swallow for nearly twenty-four hours, previously, swallowed some food, soon after withdrawing the bougie; and she continued able to take nourish ment, in small quantities, for the two succeeding days. At the end of this period, it became necessary again to introduce the largest bougie; and this operation was repeated each second, or third day,

during the two following weeks. By this time, however, not only had the inability to swallow, increased, but it became exceedingly difficult, to pass the smallest of the bougies. The tumor, which had been observed on the side of the œsophagus, had, during this period, considerably enlarged, and had extended down to the level of the crycoid cartilage. Suspecting that the pressure of this tumor upon the upper portion of the œsophagus, was increasing the stricture, and operating as an additional hindrance to the passage of food, and the bougie, I made an effort to raise it from its bed, by inserting the points of my fingers under its base, and drawing it upwards and backwards, towards the mastoid process. In this, I succeeded, and while it was retained in this position, the patient could swallow better than she had been able to do, for several preceding days. Under these circumstances, I proposed to my colleague, that we should remove the tumor. He acceded, and the patient herself desiring the operation, the tumor was carefully dissected out, by Dr. S., on the 22d of April. It proved to be, what we had anticipated, a scirrhous enlargement, of one of the lymphatics. A re-union, by the first intention, followed this operation; the patient could again take nourishment, in small quantities, and this ability to swallow continued for several weeks after the removal of the tumor. About the 1st of June, the difficulty of deglutition again returned; the patient soon lost

all power of swallowing, and was in danger of dying, from actual starvation. On the 4th of June, we succeeded in passing through the stricture, the smallest tube of Hutchinson's stomach pump, and, immediately, pumped into the stomach, some liquid nourishment. From this time, until her death, we had no difficulty in administering, by means of this invaluable instrument, all the nourishment that this suffering lady required. But, notwithstanding this, she gradually sunk, under the influence of the disease. On the 7th of June, she was attacked with severe rigors, which were repeated on the 8th and 9th, and were attended by a diarrhœa; under which she sunk, rapidly, and died on the 11th of the month.

Autopsy.—Assisted by Dr. Smith, I examined the body, fourteen hours after death.

On making an incision, along the side of the larynx and trachea, we found that the parts, which had surrounded the removed gland, had healed kindly, and were in a healthy condition. The whole chain of glands along the side of the neck were enlarged, and in a scirrhous condition. On cutting into one of the largest of these tumors, which was situated over, and near the union of the clavicle and sternum, it was found to be in an ulcerated condition, and to contain a quantity of bloody serum; its walls were bounded, on one side, by the trachea and œsophagus; the muscular coat of the latter, and also that of the jugular

vein, were also destroyed by the ulcer. Had the patient lived, it must have made its way into the œsophagus, in a very short time.

On laying open the œsophagus, the investing membrane of this tube was found greatly thickened, for several inches below its orifice; the mucous glands, throughout its whole extent, presented, though in a much higher degree, the same morbid appearance, that had been observed to exist in the follicles of the pharyngeal membrane; being much enlarged, and filled, many of them, with matter, apparently of a tuberculous nature. The stricture itself, it was discovered, depended upon a diseased condition of a cluster of the follicular glands, which were situated in the upper portion of the œsophagus. These glands were in a scirrhous condition, and had so enlarged as nearly to obliterate the passage. The disease, undoubtedly, had originated in the follicles of the pharynx and œsophagus; while the lymphatics, external to these, had become affected, secondarily. Both orifices of the stomach, and the stomach itself, were in a healthy condition.

The mucous membrane of the trachea and bronchi was injected; the follicles of the larynx, were slightly hypertrophied, and the lining membrane of this cavity, as well as that of the epiglottis, appeared vascular and thickened. No ulcerations were observed in the larynx.

CASE XXIII.

C. C., aged 56; an intelligent lady of the Society of Friends, came to New York, for medical aid, in January, 1844. For several years, she had suffered under a difficulty in her throat, which, at this time, had increased to such an extent as to render it impossible for her to swallow food, except such as could be taken in a liquid form.

January 14th.—*Present State.*—The patient is thin and pallid; she is debilitated, from having lived more than a twelve-month upon fluids, but her general health appears to be but little impaired; the appetite is good; voice is husky, but there is no cough; sounds from the chest are normal. She admits of the presence of no pain, except a slight uneasiness under the right breast; but complains of dryness of the throat, and of soreness, felt, whenever any attempt at deglutition is made.

The mucous lining of the fauces appears injected, and the follicles of the pharynx are in a hypertrophied condition, but no ulceration of any of these glands is apparent; the epiglottis is healthy, and the patient complains of no pain, or irritation in the laryngeal region.

Evidently, the disease, which, from the history of the case, and the appearance of the throat, must have had its origin in the glands of the pharynx,

had extended down the œsophagus, and had involved the follicles of that tube, in its morbid action.

The pharynx, and the upper part of the œsophageal tube, were cauterized, with a solution of the crystals of nitrate of silver, of the strength of one scruple of the salt to an ounce of water; and the patient was put upon the free use of Lugol's solution of iodine.

Topical medication was not employed but once, in this lady's case, as she left the city, immediately after the first application, and did not return, until the end of two weeks, at which time she came back, complaining less of the soreness, and difficulty of deglutition, but still unable to swallow food, except in a fluid form. The ability to take liquid nourishment continued until about the 16th of February, following, when the power of deglutition entirely failed. Residing in Westchester County, about fifteen miles from New York, no efficient aid was obtained, and the patient passed nearly three days, without receiving into the system, any sustenance whatever. On the 19th of February, I was requested to visit her, without delay: arrived, I found her nearly exhausted, from fasting; there was constant nausea; and occasional efforts at vomiting, were made, but nothing was ejected from the stomach. Liquids taken into the mouth, would pass down the œsophagus, apparently, to the cardiac orifice, and then be returned.

A bowl of thin soup, was immediately procured,

and I passed Hutchinson's second size stomach tube, down the œsophagus, intending to pump this nourishment into the stomach. The tube passed the cardiac orifice, so readily, that I withdrew it, in order to introduce the largest size. Before doing this, however, I directed the patient to swallow a spoonful of the soup, which she did without any difficulty, and the whole amount was taken into the stomach, immediately, by the spoonful; proving very grateful, and refreshing to my patient.

I did not see this lady again, until the 27th of July; nearly six months afterwards, but from the period of the introduction of the stomach tube, until the day of her death, which occurred on the 2d of August, she continued to swallow food, in a liquid state, in sufficient quantities to sustain life; but she wasted, gradually away; and when I saw her, on the 27th of July, she was greatly emaciated, and very feeble; her voice was husky and faint; and there was present, at this time, much bronchial irritation. On the 2d of August, she was seized, suddenly, with a violent cough; accompanied with great dyspnœa, and a burning pain, under the upper portion of the sternum. Under these distressing symptoms, she sunk, rapidly, and died, in a few hours.

Autopsy, twenty-four hours after death.—In the inspection of the body I was assisted by my friend, Dr. Robert Nelson. The stomach was in a healthy condition; the lungs, also, were healthy, with one

exception, which will be named hereafter. The bronchi were divided, just above their sub-divisions; the œsophagus, at the cardiac orifice,—which latter, was in a healthful condition,—and these parts, including the pharynx, the trachea, the larynx, epiglottis, and the tongue, were all removed together. The œsophagus was adherent to the dorsal and cervical vertebræ, by a cellular structure, which was in a diseased condition.

The œsophagus was laid open by an incision from behind, and found to be extensively diseased, throughout nearly its whole extent. The mucous glands, at its upper portion, were in a scirrhous condition, while all those below, were destroyed by ulceration. Commencing near the level of the cricoid cartilage, a deep, ragged ulcer, was found, occupying the anterior half of the œsophagus, and extending down, several inches, below the bifurcation of the trachea. Near its centre, it had destroyed, not only the cellular, and muscular coats of the œsophagus, but had involved a portion of the posterior wall of the trachea, and, at one point, had penetrated the left bronchus; thus forming a direct opening from the œsophagus, into the lungs. Through this opening, which was of sufficient size to admit the tip of a finger, matters, from the œsophagus, had found their way into the cavity of the lungs; producing the symptoms of suffocation, and proving the immediate cause of death. Numerous, bony spicula, were discovered, penetrating

the ulcerated portion of the œsophagus. They were found to be portions of the ossified rings of the trachea, and bronchi, which had become carious, and were broken up. A few tubercles were deposited in the summit of the left lung; some of which, near the ulcerated opening, had suppurated: the remainder of the left, and the entire right lung, were in a perfectly healthful condition.

Traces of considerable inflammation, were found in the trachea; its mucous membrane was thickened; its follicles were hypertrophied, and, in some places, these, together with the lining membrane, were destroyed by ulceration; some portions of the rings of the trachea, and of the bronchi, had become carious, and were broken up. The lips of the glottis, the epiglottis, and the arytenoid cartilages, were greatly œdematous. But, still more severely, had the thyroid, and the crycoid cartilages, suffered. The left lateral part, of the former of these cartilages, was denuded by ulceration, and in a state of necrosis; while one-half of the crycoid cartilage, of the same side, was also denuded, and nearly destroyed by necrosis.

These several, diseased portions, from which the drawings of Plate No. VI. were made, were removed, and have been preserved among my specimens of morbid anatomy.

The two preceding fatal cases of follicular disease of the œsophagus came under notice at that advanced stage of the affection when it was con-

sidered that topical medication would have no avail in arresting the progress of the disease; consequently, its employment, in the first instance, was altogether omitted; and, in the second case, one application only was made to the œsophageal tube. But subsequent experience has convinced me that its use was indicated; and, had the power of this remedy, in this affection, been as well known at that period as it now is, it would have been adopted, and its continued and judicious employment, there is reason to believe, would have proved effectual in restoring to health the subjects of the above severe form of œsophageal disease.

The result of the practice in the following successfully treated cases will justify this opinion.

CASE XXIV.

While attending a gentleman of this city, for follicular laryngitis, in January, 1846, I was requested by him to see his sister, who, for many years, had been suffering from a disease resembling his own, in its commencement, but which, with her had resulted in a stricture of the œsophagus.

Examining the case of this lady, I ascertained that for a period of nearly ten years she had been unable to swallow food except in a liquid form. Whenever the attempt was made, however small

the amount taken, it was sure to induce symptoms of suffocation, which would continue until the morsel was either rejected from the œsophagus or was forced into the stomach; and this the patient sometimes was able to effect by filling the mouth with water and then making strong efforts at deglutition.

Although possessing, originally, a good constitution, and enjoying, in the early stages of the affection, excellent health, yet the effect of this local disease had been such as greatly to impair the general health of this lady.

An eminent surgeon of this city had treated the case for many months, and had endeavored to overcome the stricture by the frequent introduction of graduated bougies into the œsophagus. The difficulty was aggravated rather than otherwise by this treatment. The fauces and the posterior wall of the throat presented the appearance of having been the seat of long continued follicular disease, and on sounding the œsophagus, I found a stricture situated about two-thirds of the way down the œsophagus. With much difficulty I succeeded in passing a small probang down to the cardiac orifice.

January 30th.—Cauterized the pharynx and introduced a very small sponge, saturated with a strong solution of the nitrate of silver, down the œsophagus, and through the stricture.

A free expectoration of adhesive mucus followed

the application, and the patient complained of a burning sensation along the track of the œsophagus, which continued several hours after the operation.

On the second of February, the cauterization was repeated, and again on the fourth, when the probang was armed with a sponge double the size of the one which was first employed, and this latter passed through the stricture with more ease than did the smaller one at the first operation. After several more applications, the patient was directed to make the attempt to take solid food, when, to the surprise and joy of herself and friends, it was found that she could swallow substantial food, in small portions, without difficulty.

The applications to the pharynx and the œsophagus, were continued two or three times a week for nearly two months, since which time this lady has taken solid food without trouble, and has fully regained her former health.

CASE XXV.

In September, 1847, Mrs. C——, of Troy, was brought to this city and placed under my charge, to be treated for a stricture of the œsophagus, from which, for a period of five years, she had suffered. She was feeble and emaciated, with a pale or sallow countenance. An inspection of the throat revealed marks of protracted follicular

disease, and during the above mentioned period, fluid food only could be swallowed by the patient.

September 21st.—I endeavored to cauterize the œsophagus by passing a small sponge wet with the solution, through the stricture, which occupied about the same position in the œsophagus as did the one in the preceding case; but although several attempts were made, the passage could not be effected. Great irritation of the parts was induced by the application, which was followed by a free discharge of adhesive expectoration. The application was again repeated on the 23rd, but without introducing the instrument through the contracted portions of the œsophagus. The same effect followed this second operation that attended the first.

After two days more, the application was again made, when the probang passed the stricture, and the œsophagus was cauterized through its whole length. No difficulty after this occurred in introducing a sponge of increased size; and after the fifth or sixth application, the patient made the attempt, and succeeded without inconvenience in swallowing solid food, which was the first time this had been effected for a period of nearly five years! The occasional employment of the caustic solution was continued for several weeks, when this lady left the city entirely relieved, apparently, of the difficulty under which she had so long labored.

The salutary influence of the caustic solution upon structural disease of the œsophagus, of a malignant nature, has been well illustrated in an interesting case, now under treatment in this city.

In October, 1846, the wife of Captain H., of Connecticut, came to New York, for medical aid. This lady had suffered over eighteen years from a stricture of the œsophagus; for the relief of which, all the ordinary means had been unavailingly employed. During all of the above period, she had subsisted entirely upon liquid food; but for several months before her visit to this city, the difficulty of swallowing even fluids had greatly increased. On examining this lady's throat, I found a stricture occupying the upper third of the œsophageal tube, through which it was impossible to pass a probang armed with a sponge three lines in diameter.

The topical employment of the argentine solution, however, in this case, was entirely successful; and she returned in a few weeks to her home, with the power of deglutition fully restored, and for a period of nearly two years lived, as she remarked "in a new world," with the ability to swallow, without difficulty, solid as well as liquid food.

Sometime, however, in the latter part of the last summer, after having suffered from a severe cold, she began to experience some difficulty of deglutition, and this difficulty increasing with

great rapidity, she soon found it again impossible to swallow anything but liquids, and these in very small quantities. Hoping to obtain relief nearer home, she did not come to New York until the difficulty had increased to such an extent that deglutition was almost completely obstructed. A few weeks ago she was brought to the city, and again placed under my care. I found her feeble and emaciated from almost starvation; the stricture occupying the same position, as at first, but it was now complete; for, by no efforts I could make, could I pass the smallest sized probang or bougie through the diseased and contracted portion of the tube; and for several days no nourishment except a few tea-spoonfulls of liquid had been received into the stomach. Besides, the parts external to the stricture were greatly enlarged and indurated—the result apparently of a deposition of a morbid material in the surrounding cellular tissue.

Under these circumstances, as the disease had assumed, evidently, a malignant nature, and deglutition had become almost impossible, I requested the advice and assistance of my friend, Dr. Valentine Mott.

Dr. M. saw the patient with me on the 23d of October, and on this occasion made several unsuccessful efforts to introduce a small sized bougie through the stricture. Failing entirely in these attempts, it was determined that an application

of the nitrate should be made, and that the sponge be carried down as far as the stricture would allow. The applications were freely made on this and the following day, when, at our next meeting, Dr. Mott succeeded in passing a medium sized bougie, for the first time, through the stricture, and this operation was followed by the sponge wet with a strong solution of the caustic. Continuing these operations, our patient was able, in a few days, to swallow food in considerable quantities; and, at the time of writing this—November 13th—the passage through the stricture is dilated sufficiently to enable her to receive all the nourishment required to sustain her.

In a work* published by Dr. Alderson of London, in 1847, several interesting cases of Scirrhous stricture of the œsophagus are recorded; in all of which the symptoms very closely resembled those enumerated in the preceding observations. These cases were treated "with antispasmodics, mineral tonics, with a course of mercurials, and by mechanical dilatation of the œsophagus."† All these cases, however, terminated fatally.

In the *post mortem* examinations which were made of these cases the carcinomatous deposit was found occupying, in three instances, the space between the middle of the tube and the cardiac orifice; in a fourth, the pharynx was the

* Practical Observations on some of the Diseases of the Stomach and Alimentary Canal. By James Alderson, M. D. F. R. S.

† Ut supra, page 38.

seat of the disease, which was ulcerated over its entire surface. In two instances the morbid deposit had destroyed the muscular coat of the œsophagus, ulcerating into the trachea, and extending itself, in one case, to the apex of the right lung; resembling in this last instance, in all its details, case No. XXIII.

With regard to mechanical dilatation, in disease of the œsophagus, I have not observed, in my own experience, any permanently beneficial effects to follow its use, except in cases which were purely spasmodic.

Within the last two years, eight cases of stricture of the œsophagus, where the affection had resulted from a diseased condition of the follicles of this tube, have come under my observation. All these cases, after having continued during a period of from three to eighteen years, were successfully treated by the topical use of the nitrate of silver, conjoined with appropriate constitutional remedies.

CHAPTER VI.

Pathology of Follicular Disease of the Air-Passages.

The attention of many eminent pathologists has, of late, been directed to the investigation of the nature of those anatomical lesions, which are the result of inflammatory action in the follicles of the gastro-intestinal, mucous membrane.

The frequent occurrence of ulceration in some portion of these glandulæ in typhus fever, dysentery, tabes mesenterica, cholera infantum, tubercular phthisis, etc. etc., has been long observed, and the influence which, in their pathological states, they exert upon the character, and duration of these diseases, is, at the present day, acknowledged, and, to a considerable extent, understood. But our knowledge of the pathology of the mucous follicles of the pharynx, and of the laryngo-tracheal membrane, is still limited and unsatisfactory.

It has been remarked by some writers, that the presence of disease in the glands of the respiratory system is of rare occurrence, in comparison with the frequency with which it has been found to exist in the intestinal, mucous follicles; and the difference, in this respect, in these different tissues,

has been attributed to the great predominance of mucous crypts in the gastro-intestinal membrane, as compared with those of the respiratory apparatus. Unquestionably, the occurrence of lesions, in the glandulæ of the intestinal membrane, is more frequent, than in those of the respiratory tube; but it is equally true, that disease of the investing membrane of the latter; originating in its follicles, has been repeatedly overlooked, or, has been attributed to other lesions which have not existed. Dr. Stokes* has assigned another cause of the increased frequency of follicular disease in the gastro-intestinal membrane, namely; the greater exposure of these glands to chemical and mechanical stimulation.

But, this opinion is sustained, neither by the nature of the lesions, nor by the anatomical structure of the parts; for, with a manifest appearance of design, these glandulæ of the digestive canal, are so arranged, anatomically, that they are protected from the influence of hurtful agencies which may come in contact with the mucous surface. The numerous follicles of the stomach and duodenum, as we have seen, are situated in the submucous tissue, and numbers of these cryptæ have their ducts united in one common excretory tube, which, penetrating the mucous membrane, opens upon its interior surface. These tubuli, except during the period of digestion, remain constantly

*Cyclopedia of Practical Med. Article Enteritis.

closed; while the glands of Peyer;—which, according to Andral, who has furnished a table of the relative frequency of follicular ulceration, in different parts of the canal, are the most frequently diseased of all the intestinal follicles,—have no excretory openings, whatever; but are closed sacs, that taking on a diseased action, burst, at length, and discharging their contents, become open, ulcerated cells. If we could refer, with propriety, to the above exciting cause, as a source of frequent, follicular disease, then might we expect the repeated occurrence of change of structure, in the mucous glands of the lining membrane of the œsophagus; for, throughout the whole extent of the digestive canal, no follicles are more constantly exposed to chemical and mechanical stimulation, than are these; and yet, we have found that the presence of disease in the œsophageal, mucous glands, is much less frequent, than is its occurrence in those of the respiratory apparatus. And this is in strict accordance with the physiological law, laid down by Bichat, in his pathology of the mucous membranes; that, *organs the most active, are, also, the most subject to disease.**

Hypertrophy of the Follicular glands.—It has been remarked, in a former chapter, that among the structural changes which are the pro-

* Pathological Anatomy. By Zavier Bichat, p. 81

duct of chronic inflammation of the mucous follicles of the throat and air-passages, are, hypertrophy, induration, altered secretion, ulceration, and a deposition of tuberculous matter in the follicles themselves.

Hypertrophy of the secreting organs is among the most common lesions, with which the glandular system is affected. Of this morbid change, we have frequent examples in the enlargement of the liver, the testes, the thymus gland, and in the formation of the true bronchocele. Thus it is in follicular disease of the pharyngo-laryngeal membrane. One of the earliest changes observed, is hypertrophy of the mucous glands. The investing membrane of the respiratory tube, as we have seen, is studded with mucous follicles, which, in their normal state, are scarcely visible; but, affected by disease, a deposition of textural matter follows, and these glands become, not only apparent, but, in some instances, greatly enlarged.

Hypertrophy is not always a morbid process; as it sometimes depends upon an increased nutrition of the part; but the altered secretion, and the changed structure, which attend this form of it, mark it, as being united with disease, or, as constituting, in itself, diseased action. Not only are the cryptæ of the fauces, pharynx, and air-passages, enlarged, in follicular disease, but, in many instances, the lenticular papillæ, those large mucous

glands, which are situated at the back of the tongue, just before the foramen cœcum, are found in an hypertrophied condition.

INDURATION OF THE FOLLICULAR GLANDS.—Hypertrophy of the mucous follicles, is not always accompanied with induration. In a large majority of instances; even where the disease has existed for years, this morbid alteration is not present. Cases do occur, however, where the chronic inflammation, which is attended by enlargement, is productive, also, of induration of the follicle. In the solitary glands, this change is of rare occurrence; but in the mass of follicles, which are aggregated in the tonsils, long continued inflammation is, generally, accompanied by induration; a condition of these glands which has been, frequently, but improperly, pronounced to be *scirrhous degeneration* of the tonsils.

The induration, in these cases, which is not of a malignant character, depends, undoubtedly, upon the presence of a deposition of fibrin, which, during the process of inflammation, has been lodged in the cavity of the follicle, or in the interstitial substance with which it is surrounded. The matter thus deposited, very readily becomes vascular, is supplied with blood vessels, and at length becomes organized: but this process takes place to a limited extent, for when excised, the enlarged tonsil seems to possess but little sensibility.

But there is another kind of induration, which, not unfrequently, takes place in the mucous follicles, of which the tonsils are composed, when these glands are affected by chronic disease; it arises from the presence of calcareous matter, which is sometimes secreted by these follicles, and is found deposited in the dilated orifices which lead to their cavities. In many instances, on removing an enlarged tonsil, I have found calcareous concretions, of various sizes, imbedded in the centre of the gland. Mr. Yearsley, of London, who has recently published an interesting work, on the morbid condition of the tonsils and uvula, remarks, that, in chronic disease of the tonsillary glands, he has, not unfrequently, found the hypertrophied gland filled with solid matter, of a dirty white colour, which, from its calcareous appearance, he has considered not unlike the deposite on the teeth, and supposes it may originate in the same way as the *crusta petrosa*, from the salivary, and other secretions, of the mouth. In several instances, the same author states that he has found calcareous deposits imbedded in the centre of the diseased growth; and, in one instance, a calculous closely resembling a piece of rock coral, in its arrangement. Dr. A. L. Cox, also, of this city, who has had most extensive experience in the treatment, and excision of hypertrophied tonsils, informs me, that he has often met with deposits of calcareous matter, in these glands, and, on several

occasions, had seen them so large as seriously to arrest the progress of excision.

MORBID SECRETION OF THE FOLLICULAR GLANDS.—The fluid secreted by the mucous follicles of the air-tubes, being intended to lubricate these passages, is, in the normal condition of the glands, bland, and transparent; not abundant in quantity, and possessing no qualities of an acrid, or an irritating nature. It consists, according to modern, microscopic observations, of water, combined with a viscid substance, which is termed mucus, and which constitutes about five per cent. of the whole amount. When, however, the mucous crypts become the seat of that chronic inflammation, of which we have been treating, the fluid which they elaborate is, at once, increased in quantity, and vitiated in quality.

Many years ago, M. Brenet, physician at Dijon, demonstrated by repeated experiments, that irritation of secretory, or follicular surfaces, by artificial means, was of power to change the nature, the quantity, and quality of the fluids which they secrete in their usual state. Chaussier,* who alludes to these experiments of Brenet, states, that, from a great number of researches and experiments which he had made, he had established the fact, that the fluids of the secretory organs, most of which, in their healthy state, are more or

* Vide Letter to Broussais, appended to "Proposition CC."

less acid, contract, when in a state of disease, or from prolonged irritation, an alkaline quality which renders them acrid, and irritating. Thus, the tears which constantly lubricate the surface of the eye, and which, in their healthy state, are mild and thin, and are neither acid nor alkaline, become, when inflammation occurs in the organ of vision, abundant and scalding; and in flowing over the cheeks, mark their course by a red line; fully demonstrating, that their nature is changed, that they have become acrid, and have assumed an alkaline character. It is the same, adds Chaussier, with all the secretions which are augmented by any grade of irritation. Thus, in some cases of coryza, the humor which flows from the nostrils, becomes so acrid, as to occasion the swelling of the upper lip; and in violent irritations of the bronchi and lungs, the secretions which are poured out, always assume an alkaline character. It is after this manner that disease, affecting the mucous follicles, changes their naturally bland, and trasparent secretion, into an acrid, and adherent discharge, which, instead of protecting and lubricating the parts, becomes, not only a source of irritation to the investing membrane, but serves to extend the disease to other, and more distant follicles.

Another pathological condition, dependent upon a morbid state of the follicles, is that which sometimes results in a discharge of blood, poured out

from diseased, secretory surfaces. Hemorrnages from the surfaces were arranged by Bichat, in two distinct classes; namely, those dependent upon the rupture of a vessel, and those arising from exhalation.* Modern pathologists, however, have not been able to confirm the opinion of Bichat, with reference to the existence of exhalant vessels, but they maintain the opinion that, hemorrhages of the mucous membrane, occurring where no perceptible lesion exists, depend, nevertheless, upon the rupture of vessels which, from their minuteness, are themselves invisible.

At the time of writing these pages, I have under treatment, a young gentleman of this city, who, for a long period has suffered under follicular disease of the throat, and who without manifesting any symptoms of phthisis, has had repeated hemorrhages from the pharyngeal, mucous membrane. The spot, indeed, can be distinctly seen from whence the blood exudes, and yet no abrasion of the surface, nor the rupture of any vessel can be detected.

Mr. Yearsley† relates a similar interesting case, where the patient became seriously alarmed upon observing that several mornings in succession he spat blood. Apprehending the approach of phthisis he consulted a physician, by whom he was subjected to prolonged, and severe treatment, with-

* Pathological Anatomy. By Zavier Bichat, p. 64.

† Loc. cit. pp. 35–6.

out producing any effect upon the supposed hæmoptysis. At length the attention of the physician became directed to the throat, in which were found enlarged tonsils, and a highly vascular condition of the mucous membrane. On close examination, it was plainly seen, that the blood exuded from the enlarged pharyngeal veins, and the very spot whence it escaped, could sometimes be defined. When the nature of the case was apprehended, the appropriate remedies soon removed the morbid condition of the parts.

The secretion of a fluid, possessing all the sensible, and chemical properties of pus, is the frequent result of disease of the pharyngo-tracheal follicles. When the disease in these glands has passed on to the stage of ulceration, the purulent secretion is marked and abundant, and its source is apparent; but, it sometimes occurs, where no structural lesion, either of the follicles, or of the lining membrane, can be detected. Indeed, Andral,* and other pathological writers, have recorded cases, in which a free, purulent expectoration, has continued for some time before death, where inspection, after death, has revealed no alteration of structure, nor any other evidence, whatever, of inflammation having taken place, during life. Generally, however, when purulent secretion takes place, in follicular inflammation, the glands are found to be, more or less, in an ulcerative condi-

* Pathological Anatomy, vol. II. p. 482.

tion ; in many instances they may be seen, in the posterior fauces, and on the pharyngeal membrane, some of them ulcerated, others distended with purulent matter. The fluid, likewise, which is poured out from the follicles of the tonsils, when these glands are hypertrophied and inflamed, is, not unfrequently, of a purulent nature.

I have, on a former occasion,* expressed the opinion that tuberculous deposits are sometimes found on the surface of the membrane lining the larynx, or collected in the mucous follicles of this cavity. I am perfectly aware of the high authority opposed to this statement, and I should not presume, from a limited observation, to express such an opinion, if I were not sustained, on the other hand, by authority not to be altogether disregarded.

In M. Louis' work on Phthisis, published in 1825, this author declared that, not "in a single instance, had he met with tuberculous granulations, in the substance, or on the surface of the epiglottis, larynx, or trachea." In the second edition of his Researches, published eighteen years afterwards, and recently issued by the "Sydenham Society," Louis reiterates the assertion, though not as positvely, and unconditionally as in his former work. He says, from his additional experience, "It may be regarded," in his opinion, "as a law of the system, that tubercles, so com-

* See New York Jour. of Medicine, Vol. IV. No. XII. p. 354.

monly, and abundantly developed in the lungs, are not produced, at least *after the age of fifteen*, in the upper air-passages; if such an occurrence does ever take place, it can only be regarded as a singularly rare exception to the ordinary course of things.*

Authority on this subject, coming from such a source, claims the highest consideration, and any one of limited experience, may well hesitate to entertain, or express, an adverse opinion. But it is the prerogative of all to investigate, and no opinion in medicine, should be received as an established principle, which depends upon the authority of a single individual, however weighty his authority may be.

The members of the medical profession in America,—a large proportion of them at least,—have been quite disposed to receive the views of the French pathologists as established truths, about which further investigation is considered medical heresy! A few years ago, it was promulgated by the French School of Pathology, that a morbid condition of the mucous glands of the small intestines, is the essential characteristic of *typhus fever;* and this doctrine was received by a large class of the medical profession, in this country, as an axiom in medicine. So, too, the physiological system of Broussais; a system having enough of truth

* Researches on Phithisis, by P. C. A. Louis, p. 45. Sydenham Society Edition.

mingled with it to give it an air of great plausibility, was esteemed, by a part of the profession, in America, as a revelation in medical science. But it has fallen, says a late medical writer, before close observation and logical reasoning, and left the followers of Broussais, comprising almost the entire existing generation of French physicians, at sea without a compass.*

The same disposition obtains with many of our profession, to receive, unquestioned, the opinions and conclusions of Louis, on the subject under consideration; and, certainly, to no single authority could they refer with higher confidence. Others, however, whose opinions should have some weight with the profession, have questioned these conclusions. Among these, M. Andral, in 1840, declared that the mucous membrane of the larynx, is, frequently, the seat of tuberculous deposits;—an opinion, I believe, to which he still adheres. In Dr. Williams' work on Pulmonary Consumption, he remarks:—"If tubercle be, as we suppose, a degraded condition of the fibrin or nutrient principle of the blood, we may expect it to be deposited wherever the nutrition or the secreting process is carried on;—wherever lymph or pus is occasionally found,—wherever, in short, blood-vessels run. Tuberculous matter," he adds, "has been met with in coagula in the heart, spleen, and blood-vessels; and it may be deposited in tis-

* British and Foreign Medical Review.

sues, and on surfaces, independently of irritation of these parts."

M. Tonnellé, a writer to whom Louis alludes, in his second edition, assures us that he has found tuberculous productions in the cavity of the larynx, among which were slightly softened tubercles, which had produced ulceration of the mucous membrane.

Dr. Carswell declares, "That the mucous system is by far the most frequent seat of tuberculous matter;—that the presence of tuberculous matter in the larynx, in the trachea, and in its larger divisions, is not often observed," but that "he has met with it, in a few instances, in the follicles of these parts, and occasionally in the saculi laryngis;" and he then makes this pertinent inquiry:—"May it not be owing to the facility with which tuberculous matter escapes, that we do not find it acccumulated on the mucous surface of the larger bronchi, or the trachea, or that of the intestines?"

In short, Dr. Carswell supposes that tuberculous matter may often be secreted upon the free surface of the membranes of these parts, but that not being entangled, or confined in any mucous crypt, it is removed as soon as it forms. This view of the subject, in my opinion, explains the whole difficulty of the matter. M. Louis has not met with tuberculous deposits, on the surface of the epiglottis, larynx, or trachea, in adults, simply because all morbid secretions, and especially those of inorgan-

izable matter, operate as irritants upon these parts, and are thrown off as soon as formed. Again; this view of the subject is sustained by the fact,—a fact which Louis recognizes,—that tuberculous matter is frequently found filling the smaller bronchi; being secreted upon the mucous surfaces of the terminal branches, it is there arrested while it is thrown off from the free surface of the trachea, and larger bronchi.

The opinion here advanced is also corroborated by another important fact. It has been shown by M. Tonnellé, and admitted by Louis, that before the age of fifteen, tuberculous matter may be deposited in the larynx; or, in other words, there may be lodged in the upper air-passages of the child, while the expulsive powers of the chest are feeble, morbid secretions, which are thrown off, as soon as formed, when those powers are strong, as in the adult.

Sustained by these facts and conclusions, I am still of the opinion that, in several instances which have fallen under my observation, I have found in enlarged mucous follicles of the upper air-passages, and imbedded in the tissues of these parts, morbid deposits, presenting all the physical characters of true tuberculous matter.*

* After the sheets of this work were put into the hands of the publisher, I received, through the agent of the "London Sydenham Society," the able pathological work of Professor Hasse,—of the University of Zurich,—which has just been issued by that Society

Whenever such deposits are observed, however, their appearance may always be looked upon, as indicative of the presence of a tuberculous diathesis.

Ulceration of the Follicular Glands.—The observation has already been made, that, in all cases

In this work, the above views, with regard to the deposition of tuberculous matter in the air-passages, are fully sustained.

Besides the erosions to which M. Louis alludes, as being often found on the laryngeal face of the epiglottis, and the posterior surface of the trachea;—and which owe their origin, undoubtedly, to the contact of these parts with tuberculous matter expectorated from the lungs,—there are other lesions of the mucous membrane of these parts, which present a notable difference from the above. These are termed by Professor Hasse, *real tuberculous ulcers.* "Louis, indeed," he remarks, "disputes their tubercular nature. Nevertheless, the generally well-marked tubercular granulations within these ulcers, and the determinate character of their microscopic elements, remove all doubt as to their true origin. They are most frequent in the larynx,—in its upper half, and at the posterior or anterior angle of the vocal chords,—but often occupy the whole inner surface of the organ. In many instances they extend to the lower side of the epiglottis,—sometimes beyond it, to the root of the tongue, even to the pharynx, and now and then to the entrance of the œsophagus. In the trachea they are less frequent than in the larynx, and chiefly confined to its posterior membranous walls. They are most rare of all in the bronchi."

"The opportunity of observing these ulcers," still further remarks Prof. Hasse, "at the outset, is rare; they would, however, appear to originate in various ways. Tubercle commonly accumulates within the capsules of the muciperous glands, elevating the latter into little eminences, and, ultimately, when the softening process is completed, leaving corresponding ulcers in their stead. In many instances, again, tubercles form, in the first instance, within the mucous membrane, the process being, probably, as follows: instead of normal cells, tubercle-cells form beneath the epithelium-cells, crowd together, in part reach the surface and are shed, in part irritate the contiguous textures, producing, first, loss of substance and afterwards ulcers. In other cases, again, tubercle is from the outset deposited within textures still more deeply seated."—An Anatomical Description of the Diseases of the Organs of Circulation and Respiration. By Charles Ewald Hasse, M.D., &c. pp. 358–9.

of long-continued chronic irritation of the mucous glandulæ, there exists a tendency, in the morbid action, to terminate, ultimately, in ulceration. Ulceration is always preceded by some degree of inflammation; but irritation, and engorgement of the cryptæ, may continue for a long time, in many cases, before the occurrence of that process,—a solution of continuity with suppuration,—which constitutes true ulceration. In other cases, after the irritation has persisted for some time, the engorged follicle presents a small, ash-coloured point; which is surrounded by an inflamed base, and has red, and slightly elevated edges. In follicular disease these ulcers, which, ordinarily, spread slowly, are, generally, first observed about the arches of the palate, and on the back of the pharynx; they next attack the laryngeal face of the epiglottis, and the epiglottic glands, situated at the base of this cartilage, and spreading by continuity, they in some instances, invade the mucous follicles in the ventricles, and around the chordæ vocales. Indeed, there is no part of the larynx and trachea, that may not be the seat of ulceration.

In their early stages, ulcerations of the mucous glandulæ are small, and superficial; continuing for a long time, not only are the glands destroyed, but the mucous, the sub-cellular tissues; and even the cartilages themselves, may become involved in the ulcerative process.

Intimately connected with the pathology of this

disease, are those morbid conditions of the mucous membrane which, sooner or later, occur, to some extent, in all forms of follicular disease. One of the earliest, and most common alterations which take place in the mucous linings of the air-passages, in the early stage of follicular disease, is an increase in their thickness. Invited by the chronic irritation which has been set up in the diseased follicles, there is, at first, an additional quantity of blood received into the contiguous mucous, and sub-mucous cellular tissues. This is followed by an infiltration of serum, within the substance of these tissues, by which interstitial deposition, they are rendered swollen and pulpy.

In the more chronic, and long-continued form of inflammation, an interstitial infiltration of lymph, sometimes takes place, which renders the mucous lining more dense, and constitutes the true hypertrophy of this membrane.

In almost all cases of follicular disease, however, there occurs, eventually, an opposite condition of things, from the above: for, after the affected glands have poured out their increased, and vitiated secretion, for a long time, not only are the surrounding, engorged membranes unloaded, and their increased thickness removed, but the sub-cellular tissues, and the pharyngeal muscles become atrophied; in part, probably, from the increased absorption which has been set up; and we then have, on inspection, those enlarged, or cavernous

throats, so frequently observable in long-continued follicular disease, and to which, allusion has, more than once, been made.

Connected with, and following this morbid condition of the throat, is an interesting physiological fact, which it may be proper here to mention. After the removal of the disease by a successful plan of treatment, a deposition of healthy, structural matter commences, and the calibre of the enlarged throat, is, in a short time, greatly reduced in its diameter. The filling up of the posterior pharynx, in these cases, usually commences, first, on the *right* side; so that, not unfrequently, the fleshy fibres of this side, will be, for a time, increased in thickness, to a considerable extent, beyond those of the left. The muscles of both sides become, at length, fully, and equally developed; until this takes place, however, perfect, and natural vocalization will not be fully restored.

CHAPTER VII.

Causes of Follicular Disease of the Air-Passages.

It is customary with writers to arrange the causes of disease, ordinarily, under three, separate heads;—the proximate, the predisposing, and the exciting.

In a former chapter, I have stated that the disease which we have been considering, consists, primarily, and essentially, in a morbid condition of the glandular follicles of the aerial, mucous membrane. Understanding the term, proximate cause, to be synonymous with the disease, itself, I shall refer the causes of follicular inflammation, to two distinct heads, only;—the *remote*, or *predisposing*, and the *immediate*, or *exciting*.

Hereditary tendency.—One of the most important, among the remote causes of this affection, is a constitutional predisposition. That there exists, in some families, an hereditary tendency to follicular disease, is a well established fact. At this present time, I have under treatment, three brothers—clergymen, who have been compelled to relinquish their official, public duties, on account of follicular disease of the throat; and whose mother, now over eighty years of age, is laboring under the same affection.

In another instance, coming, also, under my observation, four members of the same family, with one of the parents, were the subjects of follicular disease; and, among my notes, a large number of cases are recorded, where two and three members, of the same families, have been treated for this affection.

The presence of a strumous diathesis, awakened by any means, in individuals, who were born without any hereditary tendency to disease, may prove a remote cause of this affection. All those influences, in short, which tend to induce a cachectic state of the system, predispose the individual to follicular disease; and, among these influences, no one stands more prominent, than that of impure air;—such an air, for example, as clergymen, teachers, lecturers, and other public speakers, are, frequently, compelled to breathe in crowded, and ill-ventilated churches, lecture-rooms, &c. Every observant individual, has often been made sensible of a morbid alteration in the secretions of the mucous membrane of the mouth, fauces, and throat, when he has been compelled to breathe, even for a short period, the pent-up, and vitiated air of a crowded room.

When we reflect on the extensive mucous surface of the respiratory apparatus, thus deleteriously acted upon; and that, without a perfect performance of the functions of this membrane, those important alterations in the blood, so essential to the

health of the individual, cannot be properly effected, we wonder that, under these circumstances, changes still more pernicious than those ordinarily observed, are not more frequently produced.

M. Boudeloque, an eminent and experienced practitioner, thus estimates the influence of impure air in the production of scrofulous disease. "Personal experience," says he, "reading, reflection on a great number of facts, and the analysis of many observations, have impressed me with the deep conviction, that there exists one principal cause of scrofulous disease, a cause which predominates over all others, and without which, perhaps, the disease would never, or at least very rarely, develope itself. This cause consists in particular conditions of the atmosphere in which the individual resides. However ill-chosen or unsubstantial his food may be—however much cleanliness may be neglected—whatever be the nature of his clothing and its adaptation to the temperature—whatever the climate in which he lives,—the exercise he takes, or the duration of his sleep and waking,—if the house in which he dwells be placed in a situation to which the fresh air and the sun's rays have free and direct access, and the house itself be sufficiently airy, light and well-proportioned to the number of its inmates,—scrofulous disease will never make its appearance. On the contrary, however well chosen and nutricious the food, however minute the attention paid to clean-

liness, with whatever care the clothing be adapted to the temperature, or the duration of exercise, sleep and waking be regulated,—if the houses are so placed that the sun's rays cannot reach them, or the fresh air cannot be renewed without difficulty,—if, in short, they are small, low, dark, and badly aired, scrofulous disease will, inevitably supervene."*

Climate.—The influence of climate in the production of a morbid condition of the mucous lining of the larynx, trachea, and bronchi, has been noticed by most writers, on diseases of these organs. In predisposing the mucous follicles of the investing membrane of the air-passages, to take on diseased action, the cold, and especially the cold, and moist atmosphere of a northern climate, operates as a powerful agent.

In its more aggravated form, follicular disease of the pharyngo-laryngeal membrane, first made its appearance, in this country, in New England ; and it has occurred most frequently, and has proved most severe, in the cold and Northerly States of the Union. For several years, after the attention of the profession, at the North, had been called to the frequent occurrence, and the severity of the disease, it was not admitted that the affection had any existence, at the South.

But this exemption from the disease, does not obtain at the present day. Some of the severest

* Mémoire sur les Scrofules, Revue Médicale, 1832, Vol. I. p. 10.

cases of follicular disease, which have come under my observation, during the last two, or three years, have been those of individuals, coming from some of the most Southern States; and I have been informed by intelligent patients from New Orleans, that cases of the "Throat Ail" are very rife in that city.

Debility.—Debility has a marked influence in the production of disease of the follicular glands; constitutional debility, especially, if it be the result of severe and protracted mental labor, conjoined, as it not unfrequently is, with mental anxiety, may prove a fruitful source of follicular disease. Few causes tend more powerfully to depress the vital energies, to weaken the nervous system, and dispose the organs to take on the action of disease, than mental inquietude, united with intense application to study. To this cause of disease it is, that many of the clergy of our country are exposed; and it is for this reason, among others, that so large a proportion of clerical men,—in comparison with those of the other professions,—are affected with follicular laryngitis. In these remarks, I refer not to that portion of the clergy, who, located in our cities and larger towns, receive, many of them, ample remuneration, for their ministerial labors; —but to that more numerous class, who, settled in the towns, and villages of the country, are compelled to sustain themselves, and their families upon salaries which, with the practising of a most

rigid economy, are barely adequate to supply them with the necessaries of life!

Subjected, as such inevitably are, to constant, mental anxiety, about their own temporalities; and obliged, at the same time, to labor, week after week, that they may prepare suitable *spiritual food*, for their flocks, they become, themselves, so far as regards this life, like the "vessels of wrath" against whom they declaim, "*fitted* for destruction"—the easy, and almost certain prey to disease!

I speak not at random on this subject; for, there has come under my own observation, case after case, of individuals of this profession, who have broken down, under the combined influence of mental labor, and mental inquietude.

I am not the advocate of "fat livings" for "spiritual drones;" but, the *labourer* is worthy of his hire; and that people, or that community, who employ a spiritual labourer, whose time, and talents, and life, are consecrated to their service; and, yet, who withhold from him any part of that support which is necessary to place him above these temporal cares, rob him of his own, as truly, and, in the eye of heaven, as criminally, as the house-breaker who despoils him of his goods!

Sex.—Dependent upon a peculiarity of formation, or upon some other cause, there exists a greater predisposition to follicular, laryngeal disease, in males, than in females.

This peculiar susceptibility to disease in the male sex has been observed moreover, by writers, with regard to other affections, of the upper portion of the respiratory tube. Ryland* remarks that the opinion seems general, and well founded, that boys are more subject to croup than girls; and he refers to statistical information, given on this subject by Jurine, Goelis, and Rumsey, who have recorded a great number of cases of croup, of which, by far, the largest proportion were boys. M. Louis, in his admirable work, to which we have before referred—"Researches on Phthisis;" has recorded fifty-three cases of ulceration of the epiglottis; of which thirty-nine occurred in men, and fourteen, only, in women; likewise, eighty-six cases, where lesions were found in the larynx, sixty of which were in men, and twenty-six in women; and of ulcerations of the trachea, one hundred and seven cases are given, by the same author; of these, thirty were in females, and seventy in men.†

In a former chapter I have shown, that there exists a difference equally marked, in the liability of the two sexes to follicular disease.

Influence of age.—The influence which some particular period of life has, in imparting to the system an increased susceptibility to disease, has been acknowledged by most writers, on affections of the respiratory apparatus. With regard to

* Op. Cit. p. 131. † Op. Cit. pp. 42–3.

phthisis, Hippocrates, the father of medicine, declared that the time of life most susceptible to the disease, is between the ages of eighteen and thirty-five—"*Tabes iis maxime ætatibus fiunt quæ a decimo-octavo anno sunt usque ad tricessimum-quintum*,"—and all subsequent experience has confirmed this opinion. Most cases of true phthisis laryngea, says Dr. Porter,* have appeared about the age of thirty-two, and varying from that to thirty-six.

Altogether the largest number of cases of follicular laryngitis which have fallen under my observation, have occurred between the ages of twenty-five and thirty-five; very few have been the instances where the disease has been manifest before the first, above mentioned period.

EXCITING CAUSES.

Influenza.—With regard to some causes of disease, it is sometimes difficult to say whether they should be classed among the exciting, or the predisposing causes, as "the same agent may at one time be a predisposing, and at another, an exciting cause."

An attack of influenza may become a predisposing cause, by imparting to the system a greater susceptibility to the disease, which, afterwards,

* Observations on the Surgical Pathology of the Larynx and Trachea. By W. H. Porter, p. 130.

may be awakened by some other exciting cause. But, generally, influenza operates as a very prominent, *exciting* cause of follicular laryngitis. A large proportion of the cases, which have been observed by myself, have had their origin in a severe attack of cold, or influenza. I have elsewhere stated that, after the appearance of the epidemic influenza, of 1830;—which not only extended over Europe, and, so far as is known, over the whole civilized world;—cases of follicular disease became greatly increased, in numbers, and in severity. So, likewise, the occurrence of the epidemic of 1837;—which was almost equally pervasive with that several years before, and that which prevailed extensively, in this country, in June, 1843,—served, in each instance, to multiply, greatly, cases of follicular laryngitis; especially, in New England, and in the middle States.

The nature, and the immediate effects, of this latter epidemic upon the system, are well described in the New York Journal of Medicine, by the late, lamented editor, of that periodical. In the city of New York, according to this writer, almost the whole population experienced an attack of the disease; neither age, sex, nor any condition, in life, being exempt from its invasion. To the airy habitations of comfort and affluence, and to the hovels of wretchedness its visitations were equally made—

"—— *æquo pulsat pede pauperum tabernas*
Regumque turres."

Individuals were attacked indiscriminately, without reference to any predisposition, to catarrhal affections, and the malady was attended with a much greater depression of the powers of life, both corporeally and mentally, and with more local pain, than were proportionate to the catarrhal symptoms. Indeed, many individuals, after forty-eight hours' confinement by this disorder, looked like convalescents from some severe and protracted disease."*

Although the brain, and nervous system, generally, suffer severely, in most cases of an attack of epidemic influenza; as is evinced by the extraordinary prostration of the strength, and, usually, great depression of spirits; yet, it is upon the mucous membranes, that the violence of the morbid action falls, and especially, upon those with which the air-passages are lined. Hence, there often remains, in the aerial tissues, a greatly increased susceptibility to other diseases, of a character more dangerous than that of the primary malady.

An augmented liability to pulmonary consumption, and chronic bronchitis, it has long been known, is the common sequent, of an attack of epidemic catarrh. Follicular disease, we have had abundant reason to believe, is not unfrequently called into existence by the same, exciting cause.

Dyspepsia.—The frequency with which dyspepsia has been found to be complicated with throat-

*New York Journal of Medicine, July, 1843—Art. VI.

ail, has led many practitioners to adopt the opinion, that indigestion is not only a frequent, but, the common, exciting cause, of chronic, laryngeal disease. But this opinion is altogether erroneous; and it has originated in the, too common mistake, —in the diagnosing of disease—of giving to the sequent, the place of the antecedent. In a letter, received from an eminent clergyman, who, for several years, has suffered under an aggravated form, of follicular laryngitis, that gentleman writes: "In my own case it may be proper to remark, that I have always enjoyed uninterrupted health. Never, since my remembrance, have I lost my dinner for want of health and appetite to receive, and enjoy it; this is true up to this day. Whatever abstinence I have imposed upon myself, has been in accordance with prudential considerations." To an almost equal degree has the same exemption from dyspeptic symptoms obtained, in a large proportion of the cases, to which my attention has been directed. Where a predisposition to follicular disease exists, derangement of the digestive organs may awaken, and, unquestionably, sometimes, does call, the affection into action; but, in a much larger number of cases, the gastric disorder, if present, is consequent upon, follicular derangement, and is, in fact, dependent upon this morbid condition of the glands.

This will not appear surprising, when we reflect upon the amount of vitiated secretion, which, in

disease of the follicles of the fauces and pharynx, must find its way into the stomach; conveyed there, by the food and drinks of the individual.

Not unfrequently, has it occurred to me, in the treatment of diseases of the throat, to meet with cases of indigestion, complicated with these disorders, which, having proved obstinate, under all the ordinary modes of treatment, have yielded, readily, to appropriate medication, *after* the removal of the primary, follicular disease.

Eruptive fevers.—The great degree of pharyngeal, and bronchial irritation, which, ordinarily, is present, in eruptive fevers, but more particularly, in scarlatina, and rubeola, tends, essentially, to excite disease in the aerial, mucous glandulæ. I have under treatment, at this present time, January, 1846, an intelligent medical gentleman, of this city, in whom, an attack of scarlatina, under which he suffered, eight months ago; was followed by a severe attack of follicular laryngitis.

Children, and young persons, affected by any of the eruptive fevers, are very liable to have the follicles of the tonsils implicated, and these glands are, frequently, found, particularly, after scarlet fever, small pox, or measles, in an hypertrophic, and morbid condition; and unless great care is taken to remove this diseased state, the affection is very likely to become permanent, and ultimately, to be extended to the follicles of the pharyngo-laryngeal, mucous membrane.

Exercise of the voice.—The exercise of the vocal organs, in public speaking, and singing, has been considered a prominent, exciting cause of this disease. The frequent occurrence of the affection, among the members of the clerical profession, has led to the adoption of this opinion, an opinion which, so far as my experience goes, is not sustained by observation.

Where a predisposition to the complaint exists, an undue or irregular exercise of the organs of voice, will tend, undoubtedly, to develope the disease; but, without the presence of this increased susceptibility, the regular use of the voice, in public speaking, singing, &c., is not more liable to excite the disease, than is the constant employment of this organ, in ordinary conversation. If public speaking, alone, is an exciting cause of the malady, how happens it, that lawyers, who speak every day in the year, are, so seldom, the subjects of this affection? I have made inquiry among the auctioneers of this city, many of whom are engaged, throughout the season, in "crying," for hours, at their daily sales; and I have not been able to find a single individual, of this fraternity, who has been, to any considerable degree, a subject of the throat-ail. The truth is, the vocal organs are strengthened, by the daily, and regular use of the voice, in precisely the same manner, as the arm of the smith is invigorated, and its muscles strengthened and developed, by constant exercise.

To some other source, therefore, rather than public speaking, must we look for the cause, or causes, of the frequent occurrence of laryngeal disease, among clerical men. These causes, so far as this class of persons are concerned, are to be found, both among the predisposing, and the exciting. To one of these, I have already alluded; namely—the conjoined effects of intense study, and mental anxiety. Another cause may be found, in the sedentary habits of the clergy; but, one, which may be deemed pre-eminent, as the cause of follicular laryngitis, with the members of this profession, is referable to the great inequality, in the daily degree of exercise, which they give to their vocal organs. Remaining quiescent, or nearly so, during six days of the week, these organs, on the seventh, are required to perform, a more than double duty; and this too, when, from the fact of their having been so long at comparative rest, they are less capable of enduring the fatigue, than if the muscles, of which they are composed, had been subjected, to daily exercise, in public speaking.

If the labors of clergymen, could be equally apportioned to all the days of the week; instead of being weakened, and diseased, by public speaking, the voice would become strengthened and developed, by such employment, and the individual would be much less liable to be affected, by laryngeal disease.

The attempt to use the voice, by public speak-

ing, when the individual is laboring under the effects of a severe cold, or an attack of influenza; or the sudden, and violent exercise of the voice, although the vocal apparatus, at the time, may have been, apparently, in a healthy condition, has, frequently, laid the foundation of laryngeal disease.

Several years ago, a distinguished clergyman, from Boston, came under my care, who, for many months, had been unable to speak, above an ordinary whisper, from disease of the throat, which had been brought on, by delivering an address, when hoarse from a cold, on some interesting, public occasion; which required him to speak, as he thought, with more than ordinary energy.

In September, 1845, an interesting case of laryngeal disease, came under my observation, which will illustrate the proposition that the sudden, and violent exercise of the voice, will, sometimes, prove an exciting cause of the disease.

A robust young man, in excellent health, who is connected with a mercantile house in this city, was engaged, nearly two years before the above period, in the hoisting of a quantity of merchandise, into the upper loft of a store-house; when, wishing to give some order, he called, several times, and with considerable effort, down through the hatchway, to the men below. At this moment, he experienced, as he states, a most unpleasant sensation within the larynx; "as if something there, had given way." He, immediately became hoarse;

and this hoarseness continued to increase, until, in a few weeks, from the occurrence of the accident, his voice was reduced to a rough whisper. At first no cough was present, but soon, this condition of the vocal organs, was followed by an increased irritation in the laryngeal cavity; by a teasing cough, debility, and emaciation; and, ultimately, by frequent attacks of hæmoptysis; so that, when this patient came under my care, last September, his case presented many of the rational symptoms of tubercular phthisis; and all these symptoms had originated, apparently, in the injury which had been done to the vocal apparatus, nearly two years before this period. This opinion of its origin, and of the primary seat of the disease, is sustained, moreover, by the fact, that the patient, subsequently, recovered, under the use of topical medication, applied to the pharyngo-laryngeal, mucous membrane.

In a similar manner, commenced the disease, in the case of H. S. (No. XIX.) This gentleman, in attempting to speak to a friend, who was standing at some distance from him, increased his voice, in order to be heard, when he was immediately seized with an irritation in his throat, which was soon followed by great hoarseness; loss of voice; and, subsequently, by a cough, and extensive laryngeal, and bronchial disease.

In some instances, again, the attack is as sudden, without the presence of any appreciable cause. It

is stated by a gentleman, who has suffered, several years, from the disease, in a letter, received from him; and which now lies before me; that, in his case, "the attack was as sudden as a blow." "I was sitting," he writes, "very quietly in a church, listening to a brother [clergyman] who was preaching, when, suddenly, as I describe, I felt a tickling in my throat, which was just sufficient to excite my attention, and cause me to swallow." From this hour, the irritation, thus commenced, continued to increase, until a disease was established, which for years, entirely incapacitated him, for public speaking.

It is not to be doubted, that in all these cases, there was present, a strong predisposition to the complaint, which only required the occurrence of an exciting cause, to awaken the disease.

Tobacco.—With regard to the effects which are produced on the human system by the habitual use of tobacco, different opinions are held, and have been expressed.

That a deleterious influence is exerted on the animal œconomy, by its use, most pathologists, of the present day, admit. Of this, after having watched for many years, in my practice, the effects of this narcotic, I entertain not a doubt; and I fully accord with the opinion expressed by Dr. Prout, who observes, in his work, "On the Nature and Treatment of Stomach and Urinary Diseases," that it [tobacco] disorders the assimilative func-

tions in general, but, particularly, as he believes, the assimilation of the saccharine principle. "I have never, indeed, been able, he adds, to trace the developement of oxalic acid to the use of tobacco; but, that some analogous, and equally poisonous principle, (probably of an acid nature) is generated in certain individuals, by its abuse, is evident, from their cachectic looks, and from the dark, and often greenish yellow tint of their blood."

In the "Elements of Materia Medica," Dr. Pereira, in speaking upon the physiological effects of the moderate use of tobacco, on the human system, remarks: that he is not acquainted with any well-ascertained ill effects resulting from the habitual practice of smoking tobacco.

He admits, however, that he is not so competent to speak of its effects when otherwise employed, as in England "the practice of *chewing* tobacco is principally confined to sailors;" and is, therefore, less frequently submitted to his observation.*

As an exciting cause, the use of tobacco, in my experience, has proved a powerful agent, in the production of follicular disease of the throat. Acting as a stimulant, directly, and constantly, upon the mucous follicles of the fauces and throat; and greatly increasing, as it does, the secretion of

* Op. Supra Citat. p 318

these glands, its employment, as we should conclude á priori, must have a direct tendency to develope the disease; especially, if a predisposition to the affection exists: hence it has occurred to me to notice, that of a great number of cases of throat-ail, which, during the last year or two, have come under my observation, a large proportion of them have taken place in individuals, who had been, or who were at the time, in the habitual use of tobacco.

My attention has been called more particularly to this subject, from having noticed, several years ago, some observations on the use of tobacco in laryngeal and bronchial affections, by an eminent surgeon of this city. After having alluded to the almost universal use of tobacco in the countries of Northern Europe, he observes:—"In one very fatal and distressing form of disease, to wit, Laryngeal Phthisis, and Bronchitis, among public speakers, the fact is very clearly established, that the moderate habit of smoking, by the drain it accomplishes, and its anodyne qualities, has been eminently useful, at least as a preventive, of that peculiar malady so frequent in the United States, especially among the clergy."*

From this opinion of my distinguished countryman and friend, I am compelled to differ, entirely, by the statistical facts, which I have obtained, on

* Travels in Europe and the East. By Va.entine Mott, M.D., pp. 83–4.

this subject. Not only has the use of tobacco in any and all its forms, proved, in my experience, an exciting cause of laryngeal disease ; but where its employment has been persisted in, during the treatment of any case, I have found it impossible to restore such, to perfect health.

CHAPTER VIII.

Symptoms of Follicular Disease of the Air-Passages.

Having, already, described the morbid appearances which are found in the forming stage of follicular inflammation, and entered, quite fully, into the pathology of the disease, I shall now, only allude briefly, to the particular symptoms of the affection.

It has been stated, in a former chapter, that the access of follicular laryngitis, is, in some instances, so insidious, and its progress so gradual, that, not unfrequently, it may continue many months, and make considerable advance, before the manifestations of disease shall be such, as to alarm the individual, or to call his attention, even, to the existence of the affection.

Ordinarily, however, soon after the mucous glandulæ have taken on a morbid action, there is perceived in the region of the fauces, an increased mucous secretion ; and an uneasy sensation in the gullet or upper part of the throat is observed, attended by a frequent desire to swallow, as if some object, sticking in the passage, might be removed by the act of deglutition ; or, more generally, re-

peated attempts are made, by hawking, to clear the throat, and allay the irritation; all which difficulties are considerably augmented, by every continued effort, made, to read aloud, to sing, or to speak, as in ordinary conversation. If the secretion from the mucous follicles of the throat be examined, at this period, it will be found to be altered in its character,—being adhesive, and, in some instances, of an alkaline quality, and proving to be, by its effect on the mucous membrane, of an irritating nature.

About the same time, if the patient be accustomed to employ the voice in public speaking, or in singing, there is apparent, to a greater or less extent, a loss of power in the vocal organs; uneasiness in the larynx, with, sometimes, pain on pressure. Hoarseness, is also present, which may be light in the morning, or altogether absent, but which is increased, towards evening, and after speaking longer, or louder than usual.

On inspecting the throat, the fauces and the posterior wall of the pharynx will appear redder than natural; and the mucous membrane, covering these parts, will be deprived of its epithelium, injected, and studded over with enlarged mucous follicles. (See Plate I.) Sometimes, if the disease is recent, these glands will appear quite minute, and will be distinctly apparent, only, when the pharyngeal cavity is exposed to a full light. In other instances, they will have attained a size, sufficient

to give a rough, or granular appearance, to the whole surface of the fauces ; while the viscid, tenacious mucous, which is poured out by these follicles, in their morbid state, may be seen, coating the membrane, or appearing in patches, or marking its surface with white, or yellowish white striæ.

In some cases, several of the enlarged and morbid cryptæ will become confluent, and uniting, form angry looking tubercles, of the size of a split pea, which may be seen on the posterior wall of the pharynx.

In others, again, a deposition of textural matter takes place, and the follicle becomes indurated, and permanently enlarged ; or it may be distended with pus, or with a morbid secretion which will exhibit all the physical properties of tuberculous matter.

If the affection has continued for some time, we shall frequently find some of the diseased follicles in an ulcerated state ; these are generally first observed about the palatine arch, the posterior wall of the pharynx, and along the border, and on the laryngeal face of the epiglottis. In the first stage, these ulcers are small and superficial,—appearing in the form of ash-colored patches, surrounded by an inflamed, and slightly elevated base. (See Plate II.) Continuing, they at length destroy the mucous follicles ; and, sometimes, involve, not only the mucous, but the sub-cellular tissues, in their progress.

Accompanying the above symptoms there is often found œdema, and elongation of the uvula; and, in many instances, hypertrophy of the tonsils.

If the patient be exempt from all hereditary, phthisical tendencies, these symptoms may continue for years, without making any decided progress. At times, the unhealthy appearances, will be nearly, altogether absent, and will return again, whenever the individual is exposed to any of the ordinary, exciting causes. Some cases have come under my care, in which the disease,—its symptoms alternating in this way,—has continued for fifteen or twenty years; affecting only the follicles of the lining membrane of the air-passages; but, in other instances, where the disease had not been in progress, as many months, yet, where a strumous diathesis existed, I have found the lungs, in this period, irremediably affected; although the disorder was entirely local, in its origin, and had been limited, in its incipiency, to the pharyngo-laryngeal cryptæ.

In the fall of 1844, I was desired to see, in consultation with my friend, Prof. C. A. Lee, a gentleman of this city, who, for several months, had labored under follicular laryngitis. The disease was decided and severe, but was limited altogether, to the pharyngo-laryngeal structure; for, by a careful examination of the chest at this time, no indications, whatever, of pulmonic, or bronchial lesions, could be detected. But the individual was, mani-

festly, of a cachectic habit; and, for this consideration, particularly, he was advised to have prompt measures adopted, to arrest, the yet local disease, by topical medication. The plan proposed,—that of cauterizing the larynx, being objected to, by the patient, or by some of his friends,—was not carried into effect; and he, falling into the hands of another physician, soon after, was treated by means, addressed to the general system, only, while the local affection passed on, unchecked.

I knew nothing more of this gentleman's case, until the May following,—nearly six months after the first consultation,—when I was requested to see him again, with Dr. Lee. We now found him greatly emaciated—having a severe cough, with hectic, and night perspirations, and, indeed, presenting all the more prominent symptoms of confirmed phthisis. His voice was reduced to a rough whisper; he complained of great soreness along the whole length of the laryngo-tracheal tube; there was dullness, on percussion, under both clavicles; and, on auscultating the chest, a large tuberculous excavation, was detected in the upper portion of the right lung.

He was now quite solicitous to have the topical means employed, but, at this period, it had become too late, to have these measures prove remedial. At the patient's request, however, and by the advice of Dr. Lee, I now cauterized the larynx, freely, and this operation was repeated, twice, or

three times a week, for several weeks. By this measure, alone, the urgent symptoms were,—as they had been in other similar cases,—greatly relieved, and the life of the patient, evidently, considerably prolonged.

In the incipient stage of follicular laryngitis, of the uncomplicated form, there is seldom much cough present. The irritation that is felt in the larynx, and which is caused by the increased, and vitiated secretion from the diseased follicles, is generally relieved for the moment, by hawking, in this stage of the affection. As the disease advances, however, and the glandulæ of the larynx and trachea become involved in the morbid action, a cough will steal on, which, from being slight, at first, is at length, severe, and, in most cases, is attended by a free, tenacious expectoration.

In this respect, the cough, which arises in follicular disease, differs from that which occurs in the early stages of tubercular affection of the lungs. In the latter, the cough will frequently continue for months, without any expectoration; or, if expectoration should occur, it will consist only of a trifling amount of transparent, frothy fluid.

In another respect, these two diseases are essentially different. That peculiar, mental condition, incident to pulmonary disease;—by which the spirits of the patient are buoyed up, and hope, often, continues bright to the last,—is well known.

The reverse of this, obtains in follicular, laryngeal disease. In this latter affection, *mental depression* is, to some extent, so universally present; particularly, where the affection has been protracted, that I have been led, almost to consider it, a characteristic of the disease.

If the disease is not arrested, until ulceration of the follicles of the larynx and trachea, occurs, a manifest influence is exerted by this lesion, on the nature of the cough; it becomes greatly aggravated, and is, more or less, paroxysmal. It has, if the structural change is extensive, a peculiar cracked, or whistling character; and is attended, moreover, by considerable soreness, in the region of the os hyoides. The effects produced upon the intonation of the voice, are, likewise, very apparent; but they differ, materially, according to the seat, and extent of the disease. If the ulcerations are confined to the follicles about the tonsils, the veil of the palate, and the pharyngeal membrane, the timbre of the voice is not, ordinarily, much changed; incomplete disphony sometimes exists; or, in other words, the sounds are merely obscured, or imperfectly articulated. But let the ulcerations extend below the epiglottis, and the hoarseness is greatly increased; the voice loses its power; and should the mucous glands within the ventricles, and around the vocal chords, become involved in the morbid alteration, it is reduced to a state of complete aphonia, and a harsh whisper,—which is

merely an articulation of the ordinary respiration, —alone remains.

M. Louis has recorded several cases, where superficial ulcerations, seated within the ventricles of the larynx, had been accompanied, during life, by great hoarseness, and, ultimately, by more or less, aphonia; and still other instances, are mentioned by this author, where the ulcerations having extended to the thyro-arytenoid ligaments, were followed by the voice becoming completely extinct.

Great difficulty of deglutition, with pain, and, sometimes, dyspnœa, are symptoms which are ordinarily present, when the epiglottis, and, particularly, when its superior border is extensively ulcerated.

The existence of erosions, or superficial ulcerations about the epiglottis, in throat-ail, is a lesion, much more frequent, in its occurrence, than is generally supposed. In a large proportion of the cases of follicular laryngitis, which have come under my care, where the affection has been long-continued, I have found more or less of ulcerations of the cryptæ of the epiglottis. These erosions are frequently found occupying the edge, or border of this fibro-cartilage; and they may, often, be seen, distinctly, by pressing down the base of the tongue, with a broad crooked spatula. (See Plate IV. letter A.) By the same movement too, I have discovered, not unfrequently, deep and ragged ulcerations, burrowing in the fossæ, which are situated

below the lenticular papillæ, at the base, or roots of the tongue, where the attachments between this organ, and the epiglottis exist. Ulcerations, occupying the latter position, are productive of much mischief; and, from their peculiar position are very likely to escape detection. Unless great pains are taken, to draw the whole mass of the tongue, downwards and forwards, their situation will not be observed. Being protected by the abasement of the tongue, unless this organ is drawn forward and depressed, in the manner just described, they are not, ordinarily, reached by the topical application, in the attempt to cauterize the throat.

The symptoms which characterize the presence of these lesions, do not differ, essentially, from those which indicate the existence of ulcers in the laryngeal cavity; they are, soreness, on one, or both sides of the throat, just under the cornua of the os hyoides; hoarseness, often, with more or less cough, and expectoration of an opaque secretion—sometimes free—which seems to come from the opening of the wind-pipe, or very top of the throat. This expectoration is, frequently, increased after eating, and is sometimes, tinged with blood; or small masses of dark, almost coagulated blood, will be mingled with the sputum. Several cases have come under my notice, during the present year, where, topical measures having been employed until the laryngeal affection had disap-

peared, these symptoms have remained, and have been found to depend upon the existence of old ulcerations, in the above described locality. The following case will illustrate the nature and symptoms of these lesions: A clergyman who had suffered several years from laryngeal disease, and whose official duties had been long interrupted, by the effect produced on his voice, came under my care, for medical treatment. The measures employed—which were such as have been enumerated in other cases—were so far successful, that his voice improved, and he was enabled to return to his official public duties. But still, this gentleman returned to my office, again and again, complaining of great soreness, in the upper part of the throat, back of the os hyoides; and yet, at this time, no disease, whatever, could be detected in the fauces, or laryngeal cavity; nor, were the above symptoms, in the least degree relieved, by applications to these parts.

At length, with considerable difficulty, by placing the patient in a full light, and depressing the base of his tongue, I discovered, in the fossæ, on both sides of the root of this organ, deep and ragged ulcerations, which, until this moment, had escaped my observation, altogether. These were, now, freely cauterized; and by repeating the topical measure, occasionally, were healed, at length; when the soreness, and irritation, which had been complained of, subsided, entirely.

Since treating the above case, several others, of a similar nature, have come under my notice, where these occult lesions were found to exist in the same manner. In two of these instances, there was an occasional oozing of blood, from the ulcerated surfaces, which, commingling with the sputa, gave great alarm, to the individuals, and their friends. Topical medication arrested the morbid action, and the alarming symptoms disappeared.

The effects produced on the appearance and position of the epiglottis by ulcerations of its follicles, and of those of the larynx, are so uniform, under similar circumstances, that I have been accustomed to view the different aspects, presented by this organ in disease, as in some degree, characteristic of the location and extent, of the internal organic lesions. The appearances consequent upon these ulcerations, differ according to their seat and extent; but my observations have not been sufficiently extended to enable me to arrange, and classify, the facts obtained, with that precision which I hope,—by calling the attention of the profession to this subject,—may yet be accomplished, when more materials shall have been collected.

If the follicles, situated along the border, and on the laryngeal face of the epiglottis, become ulcerated, I have observed, that this organ; which in its normal state is slightly crescentic, loses this form, and appears flattened like the tongue; it is

moreover, enlarged and thickened, and its border may be seen, frequently, serrated by the erosions.

When that cluster of follicles, which constitutes the epiglottic gland, becomes the seat of ulceration, the epiglottis will assume nearly an erect form, and be found incurvated, or its crescentic shape considerably increased; and when this lesion has extended to the numerous glandulæ of the ventricles, and to those around the chordæ vocales, the above alteration of the form of the epiglottis, will be still greater; its lateral edges, will then be found rolled in towards each other, so that the organ will present, nearly a tubular form, with its convexity towards the dorsum of the tongue.

In October, 1845, a young gentleman from Springfield, Massachusetts, came to New York, to be treated for laryngeal disease, complicated with tubercular phthisis. The disease had progressed until the symptoms, which were present, indicated extensive ulceration of the laryngeal cavity, with pulmonary tubercular deposits. By pressing down the base of the tongue, of this patient, with the bent spatula, the epiglottis, red and hypertrophied, could be seen, erect, and rolled up like a scroll. On introducing a small sponge, into the larynx, for the purpose of cauterizing its cavity, it was found, when withdrawn, to be loaded with purulent matter. The local treatment was continued, several weeks, and was attended, so far as the laryngeal lesion was concerned, with much benefit. As the

inflammation of the larynx subsided, the œdema of the epiglottis, diminished, and its contractions, in a good degree, became relaxed; but the tuberculous disease continued, and the patient died, at last, of confirmed phthisis.

On examining this case, after death, both lungs were found extensively consolidated with tuberculous secretions; no large excavations were observed, but numerous, small cavities, extending throughout both lungs, were found to exist.

No lesion, whatever, was discovered in the trachea, but the surface of the larynx was granular, and uneven, and presented the appearance of having had extensive alterations of structure, in its cavity.

Another aspect, indicative of organic changes, which the epiglottis presents, is that lesion which Dr. Stokes calls the "leaf-like expansion of the epiglottis." In one instance observed by this writer, the epiglottis was thinned, and singularly elongated, and its form so altered, as to present the shape of a battle-door, the narrow extremity being next the glottis. In this instance, the lesions of the epiglottis coincided with double perforating ulcers of the ventricles.*

This singular alteration existed in case No. XX.; and I have observed the same lesion, in other instances, but it has always been, as in the above case, in connection with symptoms, which indi-

* Op. citat. p. 217.

cated the presence of laryngeal disease, complicated with tubercular excavations.

The symptoms which manifest themselves, when the laryngeal disease has extended into the bronchi and their ramifications, have been pointed out in a former chapter.

When follicular disease becomes complicated with a catarrhal condition of the bronchial tubes, the cough, which is, ordinarily present, is attended by a free expectoration of transparent adherent mucus; and it is this heterogeneous discharge that indicates the existence of chronic inflammation of the lining membrane of the bronchial tubes.

The symptoms which mark this complication of disease, are readily distinguished; as are those which are manifested, when follicular laryngitis exists with tubercular phthisis. In this latter complication the characteristic symptoms of consumption are, generally, greatly aggravated, by the presence of laryngeal disease; and the affection passes through its stages, and reaches a fatal termination much earlier, ordinarily, than when its progress is unattended by follicular disease, of the pharyngo-laryngeal membrane. Hence it is, that in these cases; namely, where ulcerations of the larynx co-exist with pulmonary disease;—a lesion, which, according to Louis, is a frequent concomitant of tuberculous affection of the lungs,*—the

* M. Louis found ulceration of the epiglottis and larynx to be present, in one-fifth of the cases of phthisis which he examined. Op. citat

lives of patients may, frequently, be prolonged, and their sufferings greatly mitigated, by the employment of such topical remedies, as will serve to allay the laryngeal irritation.

CHAPTER IX.

Of the Treatment of Follicular Disease.

In the treatment of follicular disease, no difficulty will arise, ordinarily, in selecting such remedies as are appropriate to the early stage of the simple, and uncomplicated form of this affection.

Originating, as it does, in a morbid condition of the mucous glandulæ of the faucial, and pharyngeal membrane, this affection, in its access, may be promptly arrested, generally, by an early application to the throat, of the proper topical, remedial agents

It is, indeed, true, that a late learned writer, of this country, and, withal, a most excellent and experienced practitioner, exhibits a want of confidence in the means usually adopted, for the cure of chronic inflammation of the larynx, of the ordinary kind ; even when occurring in a sound constitution. The remedies enumerated by this writer, as those best calculated to meet the indications in the disease, are ;—"bleeding, general and local ; blisters, or other counter irritants, frictions with the emetic tartar ointment, or croton oil, till pustulation is induced, and setons, issues, &c.,"

together with "the application, once or twice a day, of burnt alum, over the entire surface of the fauces."*

If this plan of treatment be perseveringly pursued, relief, he admits, is sometimes procured, "but it very often fails," and "in such an event, we are left," he declares, "nearly destitute of resources."

Not having employed, to any extent, the means above enumerated, I cannot speak of their efficacy in the treatment of laryngeal disease. Of the depletory part of this plan, however, from having observed its effects, in some few cases that have come under my notice, I am prepared to say, with the writer in question, that, if "urged to any extent, it proves positively detrimental, by inducing weakness, without abating the force of the disease, or in any way making a favorable impression."

On the other hand, it may be stated with confidence, that cases of this affection, occurring in sound constitutions, are treated, in their early stage, by means of appropriate, topical measures, with as much certainty of success, as we are accustomed to expect from the use of quinine, or arsenic, in the treatment of intermittent fevers.

The attention of the physician, however, is seldom called to the disease, in its incipient stage; but at a period of the affection when, secondary symptoms having supervened upon the local dis-

*Lectures on the more important diseases of the Thoracic and Abdominal Viscera. By N. Chapman, M.D. p. 122.

order, more efficient measures, in its treatment, are required.

The plan to be adopted, for the purpose of meeting the indications, at this stage, must be varied, according to the seat and extent of the disease, the causes which have induced it, and the different complications with which it may be found to be associated.

Embraced in this plan, are both the topical and the general remedies, which are required for the treatment of the disease; but it is to an examination of those of the former class, that I shall, for the present, confine my attention.

Topical medication.—Although topical remedies have been employed from an early period, in the treatment of various affections of the air-passages —in the form of powdered substances, brought into immediate contact with the diseased surface, by means of insufflation, as recommended by Aretæus for angina maligna; and in the form of vapour of different volatile mattérs, by means of inhalation, as advised by many writers,—yet to MM. Trousseau and Belloc, belongs the honor of having been "the first to prescribe and employ topical medications in chronic diseases of the larynx."*

Among the solid substances, which have been employed, as topical, therapeutic agents, are, sub-

* Preface to A Practical Treatise on Laryngeal Phthisis, &c. &c. By A. Trousseau and H. Belloc, M.D.

nitrate of bismuth, pure; calomel mixed with twelve times its weight of sugar, and rendered impalpably fine; sulphate of zinc, and sulphate of copper, each to be mixed with thirty-six times its weight of sugar; alum, with twice its weight; acetate of lead with seven times, and nitrate of silver with twenty-four, thirty-six, and seventy-two times its weight of sugar.

The apparatus for insufflating any of these pulverulent remedies, is a small reed, or a glass tube, eight or ten inches long. A few grains of the powder being placed in one end of the tube, the other is conveyed back into the mouth, when the patient, after a strong expiration, closes his lips upon the tube, and by a sudden and forcible inspiration, through it, impels the powder into the larynx and upper part of the trachea.*

Inhalations of the vapour of hot water, impregnated with some of the essential oils, or with chlorine, iodine, cinnabar, or sulphurous acid, have also been employed; but, as a serious inconvenience arises from the impossibility of restricting these applications to the diseased larynx, their use, in uncomplicated laryngitis, has been abandoned, and liquid medications substituted, as capable of being applied, with more ease and certainty, and without any risk of injuring the trachea, or bronchi. These latter are composed of solutions of nitrate of silver, corrosive sublimate, sulphate of copper,

* Op. supra citat. p. 125.

and nitrate of mercury; but after having made trial of them all, a decided preference was given, by Trousseau and Belloc, to a solution of the nitrate of silver, on account of its harmlessness, its efficacy, and its rapidity of action. A solution of the strength of two drachms of the nitrate, to an ounce, or, sometimes, to a half ounce of distilled water, was found most effectual as a topical remedial agent in laryngeal disease.*

Two methods were employed, by the above writers, for applying the solution to the epiglottis, and upper part of the larynx. In one way, the object may be effected, by means of a small, round piece of sponge, attached to the bent end of a rod of whalebone. This sponge being dipped in the solution, is carried into the patient's mouth, and passed to the top of the pharynx, where its presence excites an effort of deglutition which causes the larynx to be elevated; at this moment the sponge may be brought forward to the opening of the glottis and the solution expressed into the larynx. Another mode of applying the solution, as advised, is by employing a small, silver syringe; having a long and curved tube. The instrument being filled to one-fourth its capacity, is carried beyond the epiglottis, and the solution forcibly discharged into the opening of the larynx.

Several years before the publication in this country, of the work of Trousseau and Belloc, and

* Loc. cit. p. 125.

before possessing any knowledge of the interesting experiments which had been instituted by these gentlemen in the treatment of chronic laryngeal diseases, I had been prosecuting inquiries, in relation to the practicability of employing topical, remedial measures, for the treatment of chronic disease of the respiratory apparatus. After having tried many of the remedies, to which allusion has already been made, I became fully satisfied that, for safety, efficacy, and certainty of action, no known, local, therapeutic agent, can compare with the crystals of the nitrate of silver, in the treatment of laryngeal and bronchial affections. I speak of the *crsytals* of the nitrate; for, in preparing the solution, for topical applications, to the ærial mucous membrane, the *argenti nitras fusam*, or the solid nitrate, should not be employed, as it is much more likely, than are the crystals, to contain the nitrate of potash, or copper, or lead, in combination.

When pure, the crystals are transparent, white, or nearly colourless, and are completely soluble in distilled water. A solution of the strength of from two to four drachms of the salt, in an ounce of distilled water, when applied freely to the mucous membrane, does not act, as has been supposed, by burning, or by a destruction of textural matter: it forms, immediately, an union with the albumen, and other secretions of the mucous lining, and this compound, thus formed, defends the living tissue

from the action of the caustic; whilst it operates to produce a most favorable change, in the vital actions of the part.*

Method of applying the solution.—In the treatment of laryngeal disease, by the direct application of the nitrate of silver, to the diseased surface, I have employed, ordinarily, a solution of this substance, of the strength of from two to four scruples of the nitrate, to an ounce of distilled water. When, however, there are found extensive ulcerations of the epiglottis, or, about the opening of the larynx—ulcerations which it is desirable to arrest at once, I have not hesitated to apply directly, to the diseased parts, a solution of double the strength of the last named. But, one or two applications, only, of a medicine of this power should be made, at one time; ordinarily, however extensive the lesions may be, it will not be necessary to employ a solution of greater strength, than one composed of four scruples of the salt, to an ounce of water. On the other hand, it has been found, that one of less strength than of from forty to fifty grains of the nitrate to an ounce of fluid, will have but little effect upon a diseased mucous surface, where ulcerations exist.

In cases in which it becomes necessary to cauterize the interior of the laryngeal cavity, the aperture of the glottis should not be passed at once; the part should be *educated*, by applying the

* The Elements of Mat. Medica, &c. By J. Pereira, M.D. Vol. I. p. 587.

solution daily, for several days, to the faucial and pharyngeal region ; to the epiglottis, and about the opening of the glottis.

Proceeding in this manner, that exquisite sensibility which belongs to the lips of the glottis, is, in a good degree, overcome, and the instrument may then be passed into the larynx, without producing half the amount of that irritation which its introduction below the epiglottis would have awakened at first.

The instrument which I have always employed for making direct, medicinal applications into the cavity of the larynx, is one composed of whalebone, about ten inches in length ; (with, or without the handle, as represented in the plate) curved at one end, to which is securely attached a small, round piece of fine sponge.

The extent to which the rod is to be bent, must be varied according to circumstances ; for the opening of the glottis is situated much deeper in some throats, than in others ; but the curve which I have found, suited to the greatest number of cases, is one which will form the arc of one quarter of a circle, whose diameter is four inches. (See Plate VII. Fig. I.)

The instrument being prepared, and the patient's mouth opened wide, and his tongue depressed ; the sponge is dipped into the solution to be applied, and being carried over the top of the epiglottis, and on the laryngeal face of this cartilage, is sud-

denly pressed downwards and forwards, through the aperture of the glottis, into the laryngeal cavity.

This operation is followed by a momentary spasm of the glottis, by which the fluid is discharged from the sponge, and is brought into immediate contact with the diseased surface.

Every physician who has been present when this operation has been performed, (and a large number have witnessed it, from time to time,) has manifested much surprise on observing how little irritation has been produced, by the introduction of the sponge.

If the patient, on opening his mouth, take a full inspiration, and then be directed to breathe gently out, at the moment in which the sponge is introduced, the irritation, caused by the application, will be much less, than when this caution is not observed. The fact, indeed, has been fully established, by repeated experiments, that the introduction into the larynx, of a sponge, saturated with a solution of the crystals of nitrate of silver, of the strength of forty, fifty, or even sixty grains of the salt, to the ounce of water, does not produce, ordinarily, as much disturbance as is caused by the accidental imbibition, into this cavity, of a few drops of tea, or even of pure water!

In the topical treatment of the follicular disease, it will be found, that all larynges cannot be entered with the same facility. Indeed, in some

instances, where œdema of the epiglottis, and of the arytenoid cartilages, has existed, I have found it very difficult, in making the first attempt, to pass the sponge of the probang through the aperture of the glottis.

In May, 1845, an interesting young lady, the daughter of a member of Congress, from this State, was placed under my charge, to be treated for laryngeal disease. The affection had commenced nearly three years before, and with the exception of the occurrence of some degree of amelioration of the symptoms, during the summer months, it had steadily advanced until the period above named. At this time the symptoms were such as are ordinarily observed, and, by writers are enumerated, as belonging to laryngeal phthisis—namely: emaciation, hectic; pulse over a hundred, pain and soreness felt on pressing the thyroid cartilage; cough, dyspnœa, and erratic pains in the chest. Inspection of the throat revealed numerous enlarged and diseased follicles, with hypertrophy and ulceration of the tonsils. The arytenoid and epiglottic cartilages, were greatly œdematous; the border of the latter ulcerated, and the symptoms manifested, were indicative of ulcerations about the chordæ vocales,—complete aphonia had existed for a period of more than four months. Indications of bronchial irritation were observed; but no decided symptoms of pulmonary lesions were detected, by auscultation.

Applications of a concentrated solution of the nitrate, soon improved the condition of the fauces and pharyngeal membrane; but, by no effort, could an instrument, at first, be introduced through the opening of the glottis, on account of the partial closure of this aperture, by the œdema of the surrounding parts; and, until this latter operation was effected, the aphonic symptoms remained unchanged.

At length, after cauterizing for several days, the lips of the glottis, the œdema subsided in a degree, and I succeeded in passing a small sponge into the glottis.

An application to the cavity of the larynx was now made, every second day, and improvement rapidly took place. Two weeks from the time when the instrument was first carried below the epiglottis, she spoke aloud; and it was the first time any sound above a whisper, had been uttered by her, for a period of nearly five months. Her voice, and her general health, from this time, continued to improve, until both were fully restored. Eighteen months have since passed; during which a matrimonial engagement, which had been suspended the year previous, on account of the unpromising state of her health, was renewed, and she married, and at this time she enjoys good health.

Other physicians have observed the same difficulty in entering the larynx.

A few weeks since, a gentleman who had suffered, for more than a year, under an aggravated attack of laryngeal disease, and who had been completely aphonic, for several months, called on me with the following note, from one of our most distinguished surgeons:

"Dear Doctor:—The bearer of this has suffered a long time with cough and hoarseness. Being advised to go to a warm climate, on his way thither, he called on me. I found his uvula elongated, and his fauces much inflamed. The uvula I cut off, and cauterized the fauces. Both these localities are now well; but his hoarseness and aphonia continue, as heretofore. The lungs are sound; and to me the whole disease appears to be confined to the larynx, but there is great difficulty in passing the probang into it. Before he gives up local treatment, and departs for a warmer climate, I wish you to examine his fauces, and larynx, and try if you can enter the latter."

On examining the throat of this gentleman, the epiglottis and arytenoid cartilages, were found thickened, as in the case of the young lady, above described; but the cauterization of these parts for a few days reduced the œdema, and a small instrument was then passed through the aperture of the glottis, into the laryngeal cavity.

Nothing will so speedily enlarge the opening of the glottis, when it has been contracted by œdema, as a few applications of the nitrate, to the lips

of the glottis, and the laryngeal face of the epiglottis.

In the simple and uncomplicated form of follicular pharyngo-laryngeal disease, however severe the local affection may have been, this remedy, alone, namely; the crystals of nitrate of silver, topically applied, has proved, in my hands, a specific in a large number of cases. Its use, when the affection has been of long standing, should be continued for some time. Ordinarily, it is better to make the applications, at first, every other day, for two or three weeks; subsequently, twice or three times a week, until the granular, and vascular mucous surface, assumes a smooth, and healthy appearance, and impaired vocalization is fully restored.

Instances will occur where several of the enlarged, and diseased follicles of the throat, will become confluent, and present angry-looking tubercles, which may be seen on the pharyngeal membrane, below the palatine arch. These should be touched, occasionally, at first, with the solid nitrate, and the solution subsequently be employed.

Not unfrequently, will the mucous cryptæ, in the posterior nares, become involved in the disease; and when this occurs there will be an almost incessant dropping down, into the throat, of unhealthy mucus, from this cavity. On several occasions I have found old ulcerations of the follicles of the fossæ, from which a most offensive secretion was constantly percolating.

This diseased condition of the lining membrane of the fossa nasalis, is more certainly relieved by the topical application of the nitrate, to the affected parts, than by the employment of any other known treatment.

Applications to the nasal cavity, are readily effected, by means of a small rod of whalebone, which, instead of being curved, should be bent at nearly a right angle, one and a half inches from the end, and be armed with a small thin piece of sponge. This, being dipped in the liquid, is carried up behind the velum, and the whole lining membrane of the posterior nares, in this way, may be sponged with the solution.

Several months since, a gentleman of this city came under treatment for an affection of the larynx, which was complicated with disease of the nasal fossæ, and was of many years standing. The morbid secretion from the nasal cavity, which was, ordinarily, abundant, was greatly increased by eating; so that the patient was unable to take food without being compelled to clear the discharge from his throat, several times during a single meal. So constant and unavoidable, had the difficulty become, for many months before this gentleman came under my care, that he had taken his meals alone, refusing, on this account, to eat at the same table with his friends.

The disease of the larynx was removed by the employment of the usual topical measures; but

this was followed by no abatement of the catarrhal symptoms. Applications of a solution of the nitrate of silver, were now made into the fossæ, which being repeated every second, or third day, and continued for several weeks, removed entirely this disagreeable affection.

As this morbid condition of the follicles of the posterior nares is, not unfrequently, conjoined with laryngeal disease, many other cases, similar to the last, have, from time to time, been observed by me, which have been treated, by the above method, with equal success.

Elongation, and enlargement of the uvula, is a frequent concomitant, of follicular disease of the throat. Few cases occur, indeed, where the affection has continued for any length of time, that we do not find the uvula relaxed, and elongated—either the result of a diseased condition of its follicles, causing a serous effusion; or of an infiltration of fibrinous matter into the cellular tissue of this organ.

On some occasions, this lesion takes place to such an extent, as to cause great inconvenience, and irritation about the roots of the tongue, and opening of the glottis; and, even in some instances—as in the case of Captain V. (Case XIV.) to endanger the life of the individual. Not unfrequently, slight elongation, when conjoined with a morbid condition of the throat, and occurring in individuals of a delicate, or irritable habit, is pro-

ductive of much mischief, by proving the occasion of a prolonged and troublesome cough.

In simple elongation of the uvula, dependent upon relaxation of the parts ; the use of stimulant, or astringent gargles, may, in some slight and recent cases, be sufficient to overcome the difficulty. But where hypertrophy actually exists, and the uvula itself, is both thickened and elongated, excision will prove the only, effectual remedy. So simple is this operation, and so entirely unattended with subsequent danger or inconvenience, that the removal of the uvula should not be omitted, or delayed, in cases of follicular disease, where its elongation serves to increase, and prolong the irritation.

In treating of excision of the uvula, Mr. Yearsley remarks that, in order to gain all the advantage, and insure no disadvantage from this operation, it is necessary that the whole of the uvula should be removed, and not a part only, as has been the usual practice ; and he lays it down as an axiom that the shortening of the uvula is a most objectionable operation ; inasmuch, as patients, by its partial removal, have, occasionally, been much inconvenienced by the irritation kept up by the food, in its passage through the isthmus, striking against the amputated surface ; while, on the contrary, its entire removal, by which the palatine arches are thrown into one, is an operation which, in suitable cases, is to be commended, not only for

the comfort and advantage it confers, in many cases, but for the ease and safety with which it is performed. "The utmost pains," he adds, "have been taken to ascertain the results of the loss of the uvula, but in no one case, can I find that the slightest inconvenience has arisen from its removal."*

In a large number of cases where I have found it necessary to amputate the uvula, I have not been made aware, in any instance, of the occurrence of inconvenience, either from its partial, or entire removal. Ordinarily, however, I have not considered it advisable, in the operation, to practice total excision; but have, generally, found it necessary, and quite sufficient, to remove the greater part of this organ.

Various instruments have been employed for truncating the uvula. The most simple, and, altogether, the most convenient, for this operation, are the curved scissors, and a pair of long, and slender forceps, having finely serrated blades. (Plate VIII. Fig. 4 and 5.) With these forceps, the extremity of the uvula is seized, and being retained, the scissors are carried into the mouth, and excision of the organ, at any point, may be quickly performed.

Hypertrophy of the tonsillary glands, although not, necessarily, a concomitant of follicular disease, is, nevertheless, frequently found to co-exist with

* Op. cit. p. 54.

this affection. The nature of these enlargements have, already, been considered. When they are the result of a chronic inflammation of the lacunæ, of which the tonsils are composed, the morbid growths will be found to depend, for their immediate cause, upon a deposition of fibrinous matter, which gradually becoming organized, is incorporated with the proper glandular substance, producing permanent enlargement, and induration of these organs.

To disperse such enlargement of the tonsils, various local and general agents have been employed ; such as astringent and stimulant gargles ; the different preparations of iodine ; and the repeated applications to the morbid growths, of the solid nitrate of silver. But, when this lesion is the result of a fibrinous deposite, these measures, however long or perseveringly they may be pursued, fail, almost universally, to remove the cause.

Hypertrophy, and induration of the tonsils occur, frequently, in young persons and children, independently, of follicular disease of the throat. In some instances, the affection appears to be congenital, or is hereditary ; in others, it is the result of repeated attacks of chronic inflammation of the tonsillary glands. When the hypertrophy is accompanied by induration ; whether this condition co-exists with follicular disease, or is the effect of chronic tonsilitis, excision of the enlarged gland, is almost the only method of treatment, by which

permanent and effectual relief can be obtained. This fact ought to be better understood by the profession, than it seems to be ; for the practice of painting these morbid growths with the tincture of iodine, or of cauterizing them with the solid nitrate, is still continued, and patients are daily being subjected to this annoying and useless practice, often, month after month, with the apparent expectation on the part of their attendants, that enlarged and indurated tonsils may be discussed by these applications!

When the disease is recent, and the enlargement is soft, this treatment may prove serviceable, in some cases; but more frequently, even under these circumstances, the effect of the applications has been, in my experience, to increase, rather than to diminish the morbid growths; and when induration has occurred, as the result of a deposition of textural matter, the employment of any, or of all the ordinary topical measures, will prove entirely futile. Consequently, for a number of years, I have been accustomed to practice excision, in the treatment of enlarged, and indurated tonsils, whenever this operation could, with propriety, be performed.

Several years ago, before experience had taught me the inefficacy of topical applications, in hypertrophy of the glands, I attended a young lady of this city, who had suffered for a long period, from

enlarged, and indurated tonsils. Objections to their removal, by excision, being made by her friends, I attempted to disperse them, by local measures; and, for nearly three months, I made almost daily applications of the solid nitrate, to the diseased glands. No improvement, whatever, took place, in this time, and at the end of the above period, the consent of the patient and that of her friends, to an operation, being obtained, the morbid growths were removed, by excision; and, as the young lady, herself, declared, with much less pain, and inconvenience, than she had previously experienced, at each application of the nitrate of silver.

A distinguished physician of my acquaintance, employed, for nearly six months, the different discutient remedies, in the case of a young clergyman, formerly of this city—who was the subject of enlarged tonsils—without any obvious effect, whatever, being produced. I was, afterwards, requested to remove these enlargements; which I did, by excision; when I found that they presented, on cutting them, almost a cartilaginous consistence; they had, doubtless, become still more indurated, by the topical applications which had been made to them. Even Homœopathy seems powerless, in these cases: a few weeks since, I removed from the throat of an eminent author, in this city, a pair of enormously enlarged, and indurated tonsils,

which, for a whole year, had resisted the effects, of a constant employment of some of the "highest Hahnemannic potencies!"

In former years, it was customary to employ the ligature, or a flexible wire, for the removal of enlarged tonsils. This practice is now, generally, and ought to be, universally abandoned; for,—as the ligature, or wire, must, necessarily remain on for many days, or, until the tumor sloughs away,—this practice, not unfrequently, produces extensive irritation of the mouth and about the faucial region; an irritation, which, generally, interferes much with respiration and deglutition. This method of operating, for hypertrophied tonsils, was employed, to obviate the danger from hemorrhage, which, it was supposed, might follow the use of the knife. In the numerous instances in which I have operated, by excision, I have not met with a single case, where any serious inconvenience, resulted from the subsequent hemorrhage.

Whenever, therefore, enlarged and indurated tonsils are found, in connection with follicular disease, these enlargements should be removed, at once; and their excision followed, in the course of a few days, by topical applications to the throat, of the nitro-argentine solution. If the diseased growths are not removed, the subsequent treatment will prove, in a great degree, unavailing; for the irritation produced by their presence; and,

especially, by the morbid secretion, which is poured out by their disordered lacunæ, will be sufficient to perpetuate the disease.

Instruments of many forms, have been employed, by different authors, for the removal of enlarged tonsils. Those, that have obtained the most credit, among surgeons, are: the guillotine knife; Cloquet's instrument, which is a pair of strong scissors, with crescentic-shaped blades; the knife and ring, as recommended by Dr. A. L. Cox, of this city; the common bistoury, etc. etc. After having tried several of these instruments; to the use of all of which, some objection exists; I procured to be made, and have used, for several years, a strong knife, having a long, slender blade, terminating in a blunt, or probe point; and a pair of crooked forceps, which have small claws, after the manner of the forceps of Muzeux. (See Plate VII. Fig. 2 and 3.) With this knife and forceps,—with which latter instrument the tonsil may be seized, drawn out from between the pillars of the fauces, and firmly held,—I have operated, in a large number of cases, with ease, and perfect success.

Of the Topical treatment of Follicular Disease, when complicated with Chronic Laryngitis.

Although this affection is, primarily, a disease of the mucous cryptæ, of the lining membrane of the air-passages; yet, as we have seen, in some

cases, after having continued, for a longer or shorter period, the intervening mucous tissue of the larynx, becomes involved with the diseased, glandular action; and we then have the original affection complicated with chronic laryngitis.

The plans of treatment for chronic laryngeal inflammation, which have been proposed by different authors, coincide, very generally, with the measures recommended by a writer, in this country, to whom allusion has already been made.*

The remedial measures proposed by Dr. Ryland,† consist, chiefly, of the abstraction of blood, generally and locally;—the latter by means of leeches applied in the neighborhood of the larynx; —counter irritation, by means of blisters, tartar-emetic, issues, or the actual cautery; aided by internal medicines; such, for example, as tartarised antimony and mercury; the former of these, given to the extent of producing nausea; and the latter, sufficient to cause some soreness of the gums; together with the inhalation of soothing vapours, and the rigid enforcement of absolute rest. In addition to many of the above remedies, Dr. Cheyne‡ advises, "the establishment of a discharge, from both sides of the larynx, by means of small caustic issues;" while Dr. Stokes allows, that a solution of the nitrate of silver, containing, according to circumstances, from ten to fifteen grs. to the ounce of

* Chapman, ut supra. † Op. cit. pp. 111–12.
‡ Cyclop. of Prat. Med. Art. Laryngitis.

water, may be employed; or the caustic solution of iodine, as recommended by Lugol; or the inhalation of the vapour of iodine, combined with a narcotic.*

Dr. Williams places his principal reliance, in the treatment of chronic-laryngeal disease, on local bleeding, followed by counter irritation, at the sides of the neck, or upper part of the chest, together with the adoption of a mild mercurial plan, which shall be varied to the extent of affecting the gums.† When these remedies fail of affording relief, and symptoms of approaching suffocation present themselves, the above writers advise that, as a last resort, recourse should be had to tracheotomy.

I have alluded thus briefly to the modes of treatment, employed by some of the principal writers on chronic laryngeal disease; in order to show that depletory measures, conjoined with counter irritants, constitute the principal, therapeutic means, employed by these authors; and that, in their opinion, if these measures fail, they are left, nearly destitute of resources; for, in such an event, recourse is advised to be had, to tracheotomy,—an operation which, in these cases fails, almost invariably, of producing permanent relief.

That we are not without resources, in the treat-

* Op. citat. p. 228.

† Diseases of the Respiratory Organs. By Chas. J. B. Williams, M.D. etc. pp. 132–3.

ment of chronic laryngeal disease, when the above measures fail; but, are in the possession of other, and most efficient remedial means, has been fully demonstrated, by the cases that have already been given.

Many others have come under my observation, whose symptoms and history, stamped them as marked cases of chronic laryngitis, complicated with follicular disease, where, other means having utterly failed, the long continued applications of a concentrated solution of the nitrate of silver, was effectual in removing the disease, entirely.

The following case is one of much interest, not only on account of the severity of the symptoms, and the happy effects that followed the employment of the local remedy, but for the reason, that the patient had been seen by several eminent physicians, during his illness, who had considered his case to be one of phthisis laryngea.

In August, 1845, I was desired to see Mr. C. F., a young man who, before his sickness, had been occupied as a teacher, in one of the high schools, situated in the country, a short distance from New York. A cold that he had taken, more than a year before the above period, was followed by sore throat, hoarseness, and, ultimately, by complete extinction of the voice. During the winter, he was confined to his room; and from the first of January, until the seventh of August; at which time he came under my care, he had not uttered a

sound, above a whisper. His attending physicians having considered his case to be one of chronic laryngitis, had employed, without avail, all the ordinary means—such as general and local depletion, counter irritation, &c. to remove it.

When called to attend him, he was feeble and emaciated; his voice, for a period of more than seven months, had been completely extinct, his cough was almost inaudible, and he complained of much soreness and irritation, behind the thyroid cartilage. The mucous membrane of the throat, was thickened, and the pharyngeal portion, was studded with hypertrophied follicles.

Bronchial irritation, to some extent was present, but the parenchyma of the lungs, appeared unimpaired.

Commencing at once, with a concentrated solution of the nitrate, I applied it, at first, to the faucial and pharyngeal structure, and after a few days, introduced the sponge, every day, into the larynx, and cauterized its cavity freely—down to the inferior vocal ligaments. On the eighth day, after the first application, he spoke aloud; and from that time, his voice increased in strength, daily. His general health, also, improved as rapidly as his voice; and, at the end of three weeks, he left the city, apparently, in good health, and with vocalization fully restored. In February, six months after he left New York, I received from him a letter, in which he writes:—"Your treat-

ment of my throat, has been sufficiently successful, to restore my voice and health. My school now consists of thirty-eight scholars. I am able to attend to all the exercises of the school, without any assistance. I use my voice as much, and as freely, as I ever did, in any part of my life."

So certain, and so salutary, are the effects of the nitrate of silver, upon the mucous membrane and its cryptæ, when affected by chronic inflammation, that I have, long since, considered the local employment of this remedy, a specific, in diseases of this character and location. Of its effect, in acute inflammation of the mucous, and sub-mucous tissues, when locally employed, less is known. Having used it in several cases of acute uvalitis, where its free application, in a concentrated solution, to the uvula, velum, and whole faucial structure, arrested, at once, the inflammatory action, I ventured, a short time since, to resort to this remedy in treating a disease, which has been remarkable, hitherto, for not yielding, in a large proportion of cases, to any plan of treatment employed.

Mrs. B., a lady of rather a delicate constitution, who had been hoarse from a cold for several days, rode out from the city, a few miles, on the afternoon, of Friday, the 11th of June, of the present year.

The day had been warm, but on returning to the city, towards evening, the weather had become

cooler, and the carriage being open, she faced a current of air, all the way home.

Some slight chills occurred during the evening, which being followed by a restless night, led her to suppose she had added to her cold ; and hoping that these symptoms would soon subside, she delayed through the following day, to call for medical aid. Her hoarseness the next morning, was greatly increased ; slight chills were again felt, and in the course of the day, pain, and a sense of constriction about the larynx, came on, attended by a dry severe cough, and great difficulty of respiration.

I was called to see her, late on the evening of the 12th of June, the next evening after her exposure, and found her labouring under strongly developed symptoms of acute laryngitis. She was sitting upright in bed, breathing with great difficulty, and uttering, at every inspiration, a croupal sound, which was followed by a short, convulsive cough. The face was flushed, the pulse frequent and full, and she complained constantly of a sense of suffocation, and of great distress in the laryngeal region. On inspecting the throat, the fauces, and the pharyngeal membrane, as far down as it could be seen, presented the appearance of a high degree of inflammation.

As soon as it could be prepared, an emetic of tart. ant. with ipecac., was administered, the vein in her arm was opened, and about twenty ounces of blood withdrawn.

The emetic operated freely, and although the pulse was reduced, and the patient experienced some degree of faintness, after the bleeding and emesis, yet the laboured breathing, the cough, and other distressing symptoms, remained, nearly the same. A mustard cataplasm was now applied to the upper part of the sternum, and another between the shoulders. Small doses of antimony, were given, every fifteen or twenty minutes; and, after remaining with her until two or three o'clock in the morning, I left her, to obtain other means of relief.

On returning, an hour or two afterwards, I found but little alteration; the oppressed respiration, the stridulous cough, and the distress in the throat remained about the same. She had vomited, several times, during my absence, but had obtained no rest.

I had now brought with me the means of cauterizing the throat, and was determined to delay its employment, no longer. Indeed, had I had the means with me, at first, I should not have left the bed-side of the patient, without employing this invaluable local remedy. With a solution of the crystals of the nitrate of silver, of the strength of 45 grs. to the ounce of water, I cauterized freely, the fauces, the laryngeal face of the epiglottis, and, as thoroughly as I could, the cavity of the larynx. For a few minutes, the difficulty of breathing, and the cough were increased, by the application; a large amount of viscid, ropy mucus, was discharged;

and, along with it, a small quantity of blood. In the course of half an hour, after the application, the symptoms had improved. The laryngeal cough subsided; the respiration became less laborious, and the patient, soon after, obtained some sleep. In short, from this hour, I had no farther trouble from the case. Occasional doses of expectorant medicines were administered during the day. On the following evening, a slight increase of the cough, and irritation, came on; but these, soon subsided, and were followed by a quiet night's rest.

The next day, a considerable amount of a thick and yellow expectoration, was discharged;—such as occurs on the breaking up of a severe cold;—and my patient has since continued daily to improve.*

Of the effects of Topical Measures in the treatment of Pseudo-membranous Laryngitis or True Croup.

Believing as I do that topical medication is a measure of the highest importance in the treatment of membranous croup, I shall not hesitate, at this point, to make some remarks on its employment in this most formidable malady.

M. Bretonneau was among the first to recommend and employ the nitrate of silver as a topical remedy in the treatment of membranous croup.

* The history of this case was read before the Medical and Surgical Society of New York, June 20, 1846; and is here given as reported.

He made use, however, of a very weak solution (four grammes of the salt to thirty-two grammes of water), and directed its application to be made to the throat and the opening of the glottis. The instrument he employed, and his method of application, are thus described in a work by M. Berton, which has recently been published in Paris.*

"L'appareil est composé d'une éponge fine de la grosseur environ d'une noix, fixée au bout d'une baleine assez forte et recourbée, à la chaleur d'une bougie, à 5 ou 6 centimètres de son extremité et presque à angle droit. L'éponge est imbibée d'une solution de nitrate d'argent (au degré de 4 grammes de ce sel pour 32 grammes d'eau distillée). Elle est introduite dans le fond de la gorge; l'épiglotte est soulevée et la solution exprimée au-dessus de la glotte."†

It will be observed from the above extract that M. Bretonneau makes no attempt to pass the instrument below the epiglottis. The sponge attached to the probang, being saturated with the solution, is introduced into the throat, "the epiglottis is elevated (soulevée) and the solution expressed into the glottis."‡

The topical application of a solution of the nitrate of silver in membranous croup, has also been

* Formulaire Thérapeutique, etc. Concernant les Maladies de L'Enfance. Article, Croup.

† Ut supra, p. 81.

‡ If the French anatomists will acquaint themselves with the position of the *living* epiglottis when in situ, they will find that this cartilage is always *raised*, except at the moment of deglutition.

recommended by MM. Dupuytren, Trousseau, Guersant, Guiet, Bouchut, and other French practitioners.

M. Guiet, in his Thesis published in 1843, on the treatment of croup,* thus describes the method —as practised by M. Guersant in the Hôpital des Enfants—for applying the caustic solution to the fauces, pharynx, and to the opening of the glottis in such a manner as to cause some drops of the solution to penetrate into the larynx. " L'éponge convenablement imbibée de la solution caustique, et le malade solidement maintenu par une ou deux personnes vigoureuses, l'opérateur abaisse la base de la langue, avec la main gauche, armée d'une cueiller ou de tout autre instrument; en même temps il porte avec la main droite, la baleine dans la bouche; lui fait traverser rapidement cette cavité; porte l'éponge dans le pharynx après l'avoir promenée sur les piliers et les amygdales, s'il y existe des fausses membranes; la fait glisser profondément dans cette cavité le long de sa paroi postérieure, de manière à la loger, si c'est possible, entre cette paroi postérieure et l'épiglotte; puis, quand il se sent arrêté par l'orifice supérieure du larynx, il presse un peu sur cette éponge, de manière à en faire suinter quelques gouttes de solution caustique, et à en faire parvenir un peu dans le larynx."†

* Considerations Pratiques sur le Traitement du Croup. Par P. R. L Guiet, p. 22.

† Op. citat. p. 22.

The same author informs us that Professor Trousseau at the Hôpital Neckar has employed with success a solution of the nitrate of silver as a topical remedy, in the treatment of a case of croup occurring in an infant of 20 months; but to what extent the applications were made, or of the exact strength of the solution employed, we are not informed.

M. Bouchut, whose work on Diseases of Children* was published in 1845, alludes to this case of M. Trousseau, and adds that two other well marked cases of membranous croup in private practice had been successfully treated, by means of the above local remedy. The strength of the solution as recommended by Bouchut, is ten grammes of the nitrate of silver to thirty grammes of distilled water. The instrument of the operator, and the manner of applying the caustic in pseudo-membranous croup, is thus described:— "Il faut avoir un pétite éponge fine, solidement fixée au bout d'une baleine courbée en crochet; lorsque l'éponge est imbibée, on exprime légèrement et on la porte dans le pharynx et sur la glotte, afin que quelques gouttes du liquide caustique puissent pénétrer dans le larynx."†

The application of the caustic, says the above writer, should be made in the commencement of the disease, or as soon as we perceive patches of

* Manuel Pratique des Maladies des Nouveaux-Nés, et des Enfants à la Mamelle.

† Op. citat. p. 271.

the false membrane about the pharynx, and it should be repeated at least twice in the twenty-four hours. But he observes, and recommends, great caution in making the applications to the pharynx and over the glottis, lest too large a quantity of the liquid should drop into the larynx, and produce suffocation and death; or, at least, render it necessary to practise immediate tracheotomy. The following are the author's remarks on this subject :—"Si la cautérization de l'arrière-bouche et de la partie supérieure du larynx est avantageuse, elle a aussi ses inconvénients qu'il faut connaître pour tâcher de les éviter. La suffocation immédiate peut en être la consequence, si l'on a laissé trop long temps l'éponge sur la glotte, et si une trop grande quantité de liquide a pénétré dans la larynx. Cet accident est fort grave, car il peut déterminer la mort, ou au moins la nécessité de pratiquer aussitôt la trachéotomie."*

Bearing in mind these dangers, and advising great caution in its use, M. Bouchut commends the employment of the nitrate of silver as an important medication in the treatment of croup. And yet, neither Bouchut nor his confrères, to whom allusion has already been made, derived that benefit from the use of the nitrate which they might have obtained, by carrying their applications directly into the diseased larynx, in-

* Op. citat. p. 272.

stead of making them, as they do, only to the pharynx and the superior opening of the larynx —" l'arrière-gorge et l'ouverture supérieure du larynx."

In employing the nitrate of silver as a topical remedy in the treatment of diseases in young children, I have not deemed it prudent or necessary to use a solution of the caustic of the strength recommended by Bouchut or Guiet. The former employed a solution in the proportions of one of the salt to three of water; the latter, in the treatment of membranous croup, made use of a still more concentrated solution; namely, equal parts of the nitrate of silver and distilled water. Ordinarily, I have applied in croup, a solution composed of from two scruples to a drachm of the salt, dissolved in one ounce of distilled water. A remedy of this strength I have applied freely to the fauces, pharynx, and into the larynx of young children, in a large number of cases during the last eight years, and in no single instance have I observed any indications of the danger of suffocation from its employment. On the contrary, I have repeatedly observed, that much less bronchial irritation is produced by the application of the nitrate of silver into the larynges of young children who are suffering from croup, than when it is introduced into those of adults who are affected by chronic disease of the larynx.

In cauterizing the larynx in children care should

be taken that the sponge be not only firmly fixed to the rod of whalebone, but that it be not of a size too large to pass the aperture of the glottis. Anatomists are aware that there is but a very slight difference in size between the larynx of a child of two years, and twelve years of age; and that, at this period of life, the calibre of the tube is from three-eighths to half an inch in diameter; consequently, if the sponge be formed so as not to exceed one third, or one half of an inch in diameter, it can be made, with slight pressure, to pass the aperture of the glottis, and to enter the laryngeal cavity.

The instrument being prepared, by suitably saturating the sponge with the solution to be applied, and the head of the child being firmly held by an assistant, and the base of the tongue depressed with a spoon, or any other suitable instrument, the operator carries the wet sponge quickly over the top of the epiglottis, and on the laryngeal face of this cartilage; then, pressing it suddenly downwards and forwards, passes it through the opening of the glottis, into the laryngeal cavity. If any patches of false membrane are to be observed upon the pillars or tonsils, the sponge should be passed freely over these parts, and also upon the posterior wall of the pharynx.

Not unfrequently, if topical measures are employed in the very onset of the disease, and before the exudative inflammation has extended

much into the larynx, the affection may be arrested by one or two applications of the caustic solution to the fauces, and the opening of the glottis, without ever passing the instrument upon the mucous surfaces of the larynx.

In March, 1847, Dr. P., of this city, called at my office, and requested me to visit, with him, a young child, about two years old, who that evening had been attacked with croup. This child had been indisposed for several days, with a cold, and some slight affection of the bowels, but not until that afternoon and evening had symptoms of croup been present.

We found the patient with a croupal cough, stridulous and laborious respiration; and, indeed, presenting unequivocal indications of the presence of the disease. The attending physician had administered an emetic, and had adopted other ordinary measures before calling for me. Discovering evidences of plastic inflammation about the throat, I advised the immediate application of the caustic to these inflamed parts, and, at the request of Dr. P., I applied a solution of the strength of forty-five grains of the salt to the ounce of water, to the tonsils, the posterior wall of the pharynx, and about the aperture of the glottis. Intending to follow this application with a second, and to carry the sponge into the larynx, if necessary, I remained a short time for this purpose; but, in less than half an hour after the first cauterization,

the respiration became less embarrassed, the cough less croupal, and I left without repeating the local remedy. The next day Dr. P., who remained with his patient all night, called and informed me that the child breathed with considerable freedom, and slept well a part of the night; that early in the morning, the respiration becoming again more stridulous, he deemed it advisable to make a second application of the caustic solution. After this was done, the croupal respiration and other symptoms of the disease subsided rapidly, and, by afternoon of that day, had all, or nearly all, disappeared.

Having seen, on several occasions, the local application of the nitrate of silver act promptly and efficiently in arresting exudative inflammation in its formative stage, I have been led to consider it of the highest importance in the treatment of membranous croup, that the first indications of the disease should be observed, in order that, by the early employment of this local remedy, the specific inflammation may be arrested before it shall have extended into the larynx and bronchial divisions.

We have seen that, in almost all the inflammatory affections of the air-passages, whether primary or consecutive, the diseased action has its origin in the fauces and pharynx; and extends by continuity, from thence to the respiratory tubes. This is especially true with regard to the

origin and progress of the exudatory inflammation of croup. Professor Rokitansky, who is undoubtedly one of the first pathologists of the age, says, that the exudative process progresses from the epiglottis downwards, extending in some instances to the very minutest branches of the bronchi; and Prof. Hasse also, whose late work on Pathological Anatomy has been translated and published by the London Sydenham Society, observes with regard to the exudatory inflammation of croup, that its progress is invariably from above downwards, and that it never spreads in the opposite direction. This law is so universal, that where plastic inflammation occurs in the bronchi of the adult, as the concomitant of pneumonia, it can only descend to the pulmonary cells, never mount to the larynx.*

If we admit, then, that the peculiar inflammation of croup has its origin, ordinarily, about the tonsils, and the opening of the air-tubes, we can understand how readily the application of the nitrate of silver to the parts about the larynx, may arrest the disease, if the topical remedy is employed in the commencement of the exudative process.

After the inflammation has advanced, and the surfaces of the larynx have become involved in the disease, or when the affection is complicated with inflammation of the bronchi, the argentine

* An Anatomical Description of the Diseases of the Organs of Circulation and Respiration. By Charles Ewald Hasse, M. D. &c., Sydenham Soc. Edition, p. 276.

solution should not only be applied to the tonsils and the faucial region, generally, but the applications must be extended into the laryngeal cavity, and be more frequently repeated, in order that some of the solution may find its way over the mucous surface of the larynx and trachea, into the bronchial divisions.

The interest connected with the following successfully treated case of membranous croup is enhanced by the fact that, besides being one of the most severe and complicated cases of the disease that I have ever encountered, its progress, treatment, and the effect of the treatment employed, were observed by several intelligent physicians, not one of whom considered it possible to save the life of the child by means ordinarily employed in the treatment of croup.

The daughter of Mr. Griffin, of Hudson street, came under my care for the treatment of croup, April 26th, 1848.

This child, who was three years and one month old, had been affected with a severe cold, which was attended by a hoarse cough for a whole week before the occurrence of the suffocative and alarming symptoms which characterize the full development of the disease. I was called to see this child on the morning of the 26th, and found the catarrhal symptoms present as above named. The hoarse cough, the heated skin, the restlessness, and the increased respiration of the child,

awakened in my mind the suspicion that the patient was threatened with an attack of membranous croup.

Small doses of calomel and ipecacuanha were ordered every three hours during the day, these to be alternated with a weak solution of tartarized antimony. But I failed to do what should not have been omitted at this visit, namely, to examine the throat for the purpose of ascertaining the presence of the false membrane, if it existed; for I doubt not, from the subsequent course and character of the disease, that its presence about the tonsils could have been detected at this stage of the affection.

About 8 o'clock of the following evening, I was sent for in great haste to see the child, and found her laboring under a most violent and fully-developed attack of membranous croup. The flushed countenance, the accelerated pulse, the ringing cough, the oppressed and stridulous respiration, and the appearance of the fauces, which were entirely coated with a membranaceous deposit, made it impossible to mistake the nature or the grade of the disease.

The medicine being at hand, I immediately administered an emetic dose of ipecacuanha and antimony, and after a delay of fifteen minutes, the patient not vomiting, and the respiration being greatly embarrassed, I proceeded to employ cauterization. A sponge dipped in a strong solution

of nitrate of silver was applied to the tonsils, the mucous membrane of the pharynx, and then passed rapidly over the laryngeal face of the epiglottis and into the larynx itself. This operation was followed by immediate vomiting, and the ejection of a large quantity of tenacious, glairy mucus from the air-passages, in which could be seen many broken portions of the false membrane.

After a few minutes, the patient breathed with more freedom; but this partial relief continued for a brief time only, for at the end of half an hour the cough became more stridulous, and the respiration more embarrassed than it was before the application of the topical remedy. An emetic of sulphate of zinc, in combination with ipecacuanha was now administered, by which full vomiting was produced.

As no permanent relief, however, followed these measures, but the disease on the contrary appearing to advance, I proposed a consultation, and Dr. Cox, of Union Place, was called.

It was concluded, in consultation, to continue the topical applications, to administer small and frequently-repeated doses of tartarized antimony, and to give two grains of calomel every second hour. The second cauterization was made at 10 o'clock, which brought away an increased amount of the adhesive mucus, and many shreds of the pellicular formation. The antimony, although given in large doses during the night, did not pro-

duce vomiting. This was only effected by administering the zinc and ipecacuanha, and whenever the above combination was given, it never failed to act as an emetic.

A third application of the caustic was made a little before midnight, and my assistant, Dr. Douglas, remaining with the patient through the night, repeated the cauterization for the fourth time, about two o'clock in the morning. At each application much mucus was discharged, commingled with which were many portions of the adventitious membrane. In every instance the operation was certain to be followed by a mitigation, to a greater or less extent, of all the distressing symptoms—the difficulty of breathing, the quickened pulse and respiration, would be for a time greatly diminished; but not until after the fourth application did this relief continue for any length of time. When I returned to the patient, at five o'clock the next morning, I observed a marked change in the symptoms that were present. The croupal cough and the stridulous breathing were much lessened, but on the other hand, the increased heat of the surface, the bronchial cough, and the widely-diffused rales, which were revealed by auscultation throughout both lungs, indicated too plainly that the exudative inflammation had extended into the bronchial terminations.

At the consultation held soon after my first visit

this morning, it was concluded to have a few leeches applied between the shoulders of the patient with the hope of arresting the bronchial inflammation : to continue the calomel, and to repeat the topical measures during the day should there be an increase of the croupal symptoms. During the early part of the day, the case appeared to be somewhat improved by the bleeding and the other measures adopted ; but towards night, the croupal symptoms returned with more violence than ever ; and complicated with this we had extensive bronchial disease, occupying both sides of the chest. A blister was applied over the sternum, the topical applications were renewed, and the patient again vomited with the mineral emetic. Many portions of albuminous matter were again ejected by these measures, which served to relieve greatly the stridulous breathing ; but by 10 o'clock at night, the respiration became more bronchial and rapid, the pulse was increased in frequency, and feeble ; and although the croupal symptoms were decidedly relieved by the local applications, yet the little patient appeared to be fast sinking under the suffocating effects of the bronchial disease. In consultation with Dr. Cox it was concluded that depletion, even by vomiting, could be carried no further, and that the spasm and bronchial irritation must be relieved, if at all, by other measures. It was decided, therefore, to continue the cauterizations as required, and to administer the Hydro-

cyanic Acid, in drop doses, every two hours. The excellent effects of this latter remedy were soon apparent. After two or three doses had been swallowed, the great restlessness, the almost constant suffocative cough, subsided greatly, and the ejection, after an application of the caustic, of a much larger amount of fragments of the false membrane than had before been discharged, afforded the greatest relief; so that towards morning, the child fell asleep, and for two hours slept quietly, and breathed with considerable freedom.

The next day the child appeared much prostrated, but the croupal symptoms had nearly disappeared, and the bronchial irritation was greatly lessened.

The Hydrocyanic Acid was continued for several days. Appropriate supporting means were employed, under the use of which the little patient was gradually restored to health and strength.

But notwithstanding convalescence took place in other respects, yet vocalization did not return till nearly eight weeks after the attack of the disease.

There exists a form of exudative inflammation which M. Bretonneau calls Diphthérite, or the croup of adults, but which is not exactly identical with the croupal inflammation of children. The same parts, however, are effected in both diseases, and they both end in the effusion of plastic

lymph; but true croup ordinarily commences with catarrhal symptoms, is more sthenic in its nature, and is confined in its attacks to children and persons before the age of puberty, whilst the above form of disease commences with pain, redness, and swelling of the tonsils and back of the throat generally, and attacks, moreover, individuals of all ages, but those especially who have become debilitated by other diseases.

The diphthérite proves frequently fatal. M. Louis, who, under the name of "Croup chez l'adulte," describes the disease, records only one case in which a cure was obtained by medical treatment. "It causes death," Mr. Ryland remarks, "very rapidly, when the morbid action has reached the air-passages, because the larynx is always affected;" in Louis's cases the patients never lived longer than from eighteen to thirty-six hours after the moment when we might presume, from the alteration of the voice, that the false membrane had reached the larynx. Diphthérite occurs frequently as an epidemic, and is considered by M. Bretonneau as decidedly contagious, especially when combined with scarlatina, which is one of its most frequent complications.

Still further to illustrate the nature and cause of this disease, and the effects of topical remedies in its treatment, I shall here introduce the following case of diphthérite, which came under my observation, and which was brought to a

successful termination by means of the topical application of the nitrate of silver to the diseased parts.

Early in May, 1847, Mrs. B., of Forsyth street, about thirty-two years of age, was attacked with measles. She was healthy and robust before contracting the disease, and was seven months pregnant at the time of her attack.

Nothing unusual occurred during the progress of the measles, until towards the close of the eruptive fever, when Mrs. B. was seized with pain and inflammation of the throat, attended with swelling of the tonsils and fauces generally, and with dyspnœa and great difficulty of deglutition. Her attending physician, Dr. Belcher, (Sen.,) was immediately called, and finding the above symptoms present, employed both general and local bleeding, and such other antiphlogistic measures as were deemed advisable. But the disease continuing to advance, another physician, Dr. M., of this city, was called in consultation, and other measures were adopted, but without arresting in any degree the progress of the disease.

On the 18th of May, one week after the attack of the diphthéritic inflammation, I was requested to see this patient, in consultation with the attending physicians.

The following was the condition in which I found her at this period:—She was supported in an upright position in her bed, with her head

thrown back, and breathing with the greatest difficulty; the lips and face were livid, the countenance anxious; the pulse small and frequent, and the extremities cold; there was a hoarse croupal cough, with great difficulty of swallowing, and an entire suppression of the voice. On inspecting the throat, the fauces, tonsils, and the uvula, and indeed every part that could be brought into view, were found to be completely coated with a dense false membrane. By depressing the tongue, nearly the whole of the epiglottis was exposed, and that cartilage, as well as the pharynx low down, could be seen covered with the same adventitious deposit, leaving no doubt, from the condition of the voice and the circulation, that the exudative inflammation had not only entered the larynx and trachea, but had reached even the bronchial terminations.

At the consultation it was agreed that as all other means had failed, an attempt should be made to relieve the larynx by topical applications of the nitrate of silver to the diseased mucous surface, and I was requested to make these applications.

Employing a solution of the strength of forty-five grains of the salt to the ounce of water, I applied it freely to the whole faucial region, and also passed the sponge wet with the solution into the larynx. The patient manifested no uneasiness whatever from the application, and, on being

questioned, declared she did not feel it in the least degree. The strength of the solution was now increased up to sixty grains to the ounce of water, and a second and third cauterization was made deep into the cavity of the larynx, all in the space of fifteen or twenty minutes.

It was not until the last application that the patient complained of any irritation having been produced by the caustic solution. Many shreds of the false membrane were brought away by the sponge, and were also ejected by the cough and expectoration that followed the last two applications. So decided was the relief obtained by these operations that the patient begged to have them repeated before we left the house.

A supporting plan of treatment was advised for the patient, and it was agreed to return at six o'clock and repeat the applications.

At the above hour in the afternoon, we found the patient exhibiting symptoms more aggravated than those which were present in the morning; the lips and countenance were of a livid aspect, the respiration was more stridulous, and the breathing was being performed with still greater difficulty. The relief that followed the first applications had continued for several hours, but for some time before our return in the evening the above symptoms had been coming on with constantly increasing violence.

At this visit, the applications of the sponge wet

with a solution of sixty grains to the ounce of water, were made into the larynx at intervals of five minutes, care being taken at each application to convey below the epiglottis as much of the fluid as the sponge could contain. A large quantity of muco-purulent matter, containing many particles of the false membrane, was ejected by coughing after each cauterization.

Soon after these operations, the patient expressed herself greatly relieved, and we left her, with her respiration much less embarrassed than it was on our arrival; and the following night was passed by the patient with less distress, restlessness, and oppressed breathing than had been present during either of the two preceding nights.

May 19th.—There is still great prostration, anxiety, and stridulous respiration present. The countenance is yet livid, the cough is croupal, and the voice is reduced to a feeble whisper. But it is concluded, notwithstanding, that our patient has lost nothing, on the whole, during the last twenty-four hours. Some patches of albuminous secretion can be seen about the tonsils, the uvula, and the epiglottis; but it has been detached and removed from many parts of the throat, leaving the mucous membrane beneath thickened and inflamed.

A solution of four scruples of the nitrate of silver to the ounce of water was made, and three cauterizations of this strength were employed

during the day. The effect of each application was to produce a free expectoration of albuminous matter, which was sure to be followed with great relief for a longer or shorter period.

May 20th.—But little change occurred in our patient throughout yesterday and last night. Four cauterizations were employed during the day and night, which caused the ejectment of much adhesive mucus, with membranous fragments. Some rest was obtained, but great restlessness, feeble pulse, cold extremities, and oppressed respiration, were present during the greater part of the night.

On examining the patient's throat to-day, it was found that the coriaceous deposit was almost entirely removed from the tonsils, uvula, and epiglottis, yet the embarrassed and sibilous respiration, the great anxiety, and the livid countenance of the patient plainly indicated that the false membranes were still obstructing the air-passages below, and were thus preventing the perfect arterialization of the blood; it was therefore determined to carry the cauterizations deeper into the trachea than had yet been done.

In the presence of Dr. Belcher, the attending physician, and my friend Dr. S. Conant Foster, who had accompanied me to see the case, I passed a sponge, saturated with a strong solution of the nitrate of silver—eighty grains to the ounce—through the rima-glottidis, and along the whole

length of the trachea. The withdrawal of the probang was followed by a severe fit of coughing, and the expectoration of a great quantity of muco-purulent and membranaceous matters.

Soon after this last operation, the patient appeared greatly relieved, and breathed with more freedom than she had done at any time since her first attack. The same application was repeated at evening, and from this time her recovery was rapid. The cauterizations were continued every day for nearly a week longer, when the consultations were discontinued, as the patient was considered out of danger.

Mrs. B—— recovered perfectly, and was delivered of a healthy child at her full time; but vocalization did not return until many weeks after her restoration to health. It has since been fully restored.

The power of this local remedy to restore a healthful action, where an altered condition of the mucous membrane exists, is well illustrated in the following interesting case:—

In April, 1845, a little daughter of Mr. R. F., of this city, about four years of age, accidentally drank a quantity of sulphuric acid, from a cup which had been left on the table by a servant in the family. The tongue, pharynx, and the epiglottis were violently corroded and inflamed by the poison.

Mr. Ryland relates the singular fact, that the larynx suffers injury, from the swallowing of any of the strong acids, only when they are taken accidentally, in mistake for some other liquid ;—that a person bent on suicide, will swallow the corrosive acids well, and without pain. In these cases, the larynx is never injured ; the epiglottis, during the act of swallowing, completely covers the upper surface of the glottis, and the acid passes down the œsophagus to the stomach, without impairing, in any way, the organization of the larynx. But if the acid is taken accidentally, immediately that it reaches the gullet, the mistake is discovered, violent action of the muscles of the pharynx is excited, and the corrosive liquid is rejected through the mouth and nostrils.*

In this manner, was the acid taken and rejected, by the little patient, above named ; but, besides the injury done to the back of the pharynx, and the root of the tongue ; the epiglottis, and the opening of the larynx were severely corroded, by the concentrated acid. Violent inflammation of these parts, attended with great difficulty of deglutition, followed. By the use of prompt, and active measures, under the treatment of the family physician, the inflammation was subdued ; but the injury done to the epiglottic cartilage, and the lips of the glottis, ended in ulceration of these parts ; so that, at the end of two or three weeks, from the

* Op. citat. p. 272.

occurrence of the accident, deglutition became nearly impossible, on account of the injured epiglottis failing to afford sufficient protection, to the opening into the wind-pipe.

About five weeks, after taking the acid, I was called to see this patient, and found her nearly exhausted, for the want of nourishment. If a cup of gruel, or water, was presented to her, she would seize the vessel, with great eagerness, and attempt to drink; but the moment the fluid reached the gullet, a violent, spasmodic cough would take place, by which the liquid was instantly rejected. Solid food would be thrown out in the same manner, as soon as it reached the pharynx; and this effect, for more than a week, had followed every attempt, made to administer nourishment; so that the child was, in reality, at this time, in a state of starvation. Convinced, from the symptoms present, and from an inspection of the throat, that ulceration of the epiglottis, and, probably, of the lips of the glottis, existed, I at once, determined to try the effect of a concentrated solution of the nitrate, upon this form of injury. Accordingly, I introduced a small sponge, saturated with the fluid, (35 grains to the oz.) and freely cauterized the epiglottis, and the opening of the larynx.

On the following day,—after repeating the application,—the patient swallowed a small cup-full of thin soup,—without exciting the suffocating cough,—which. as the attendants declared, was the

first food the child had taken for eight days. Some portion of the nourishment, however, must have reached the stomach, sufficient to have sustained life, during this period. On the third day, a small amount of solid food was taken, and, on several occasions during the day, a cup-full of gruel.

After this period, no difficulty occurred, in administering a suitable amount of food, and the patient,—who had become much emaciated,—rapidly regained her health and flesh.

As stated, in a foregoing chapter, follicular laryngeal disease is often found, co-existing with chronic inflammation, of the lining bronchial membrane. The presence of this complication, does not contra-indicate the topical employment of the nitrate of silver. On the other hand, in making the applications into the laryngeal cavity, a still more free use of the solution, should be employed, in order that some part of the fluid may find its way into the bronchial divisions.

Among the patients who have come under my care, during the last eighteen months, are a number of intelligent physicians, who have been sufferers from laryngeal, and bronchial disease. Several of them have informed me, repeatedly, that after having a free application of the solution, into the larynx, they have felt, distinctly, the fluid extending down the bronchial tubes. Often, in these cases, no taste of the medicine would be observed, until matter, by coughing, was expectorated from the

air-passages; when the peculiar flavor of the nitrate of silver—a most acrid bitter—would be perceived; and this would continue to be observed, whenever the individual expectorated, for many hours after the operation.

The following notes of his own case, were furnished me, by my friend, Dr. S. Conant Foster, whom I treated, in 1844, for follicular disease. The affection was complicated with some degree of bronchial irritation, as was manifested by the character of the expectoration.

The case is interesting, not only because it is that of an intelligent physician, but, inasmuch, as the topical applications, were the only, remedial measures employed, in the treatment of the case.

"In the spring of 1844," writes Dr. Foster, "I contracted a cold, the acute symptoms of which, subsided, after two or three weeks. After this, however, on first rising in the morning, I had a pretty severe paroxyism of coughing; lasting about five minutes, and terminating, after the expectoration,—which was accomplished with some difficulty,—of a viscid, tenacious mucus, of a deep slate color. Often, too, during the day, if I attempted to speak, or read, aloud, I was interrupted in the midst of a sentence, by coughing, inability to articulate, and the sensation of a spasmodic contraction, at the entrance of the glottis, which lasted a minute or two. This continued all summer, and became more frequent, and severe. There was,

also, a constant irritation in the throat, and a sense of dryness, at times, exceedingly annoying. On looking into the throat, I found the whole of the posterior fauces, in a highly congested state, and the glands beneath the mucous membrane of the throat, enlarged, and prominent.

"In September, I requested you to apply the solution of caustic, which you did, some twelve or fifteen times, in the course of six weeks; at the end of which period, the difficulty was wholly removed."

The importance of arresting disease of the bronchial mucous membrane, will be apparent, if we reflect, that it often proves a determining cause of tuberculous disease of the lungs.

Dr. Clark, long ago, declared, that irritation of the mucous membrane of the larynx, trachea, and bronchi, is a frequent exciting cause of consumption; especially, in persons, where the constitutional predisposition exists.* This has been well illustrated, in the history of several cases, which we have already recorded: the one noticed on pages 181--2; and that of Mrs. C. (No. XXIII.) are cases in point. Although, during the life-time of this latter individual, no symptoms were manifest, that indicated the existence of tubercles, yet, after death, several were found, developed in the very summit of that lung, which was penetrated by the ulcerated bronchus: some of these, located near the ulcerated opening, had suppurated; while

* A Treatise on Pulmonary Consumption. By James Clark, M.D. p. 183.

the remainder of that lung, and the entire right one, were in a perfectly healthy condition.

Among the cases of follicular disease, which have come under my notice, I have remarked a number of instances, where the affection was, in a good degree, confined to one side of the throat of the patient. Commencing, often, in the follicles of one tonsil, the disease would advance, until the larynx, and trachea, of that side, were affected by the morbid action; and, on several occasions, have I found the corresponding lung, affording evidence of tuberculous consolidation; or, of the existence of a tuberculous cavity.

Not long ago, I saw, in consultation with her attending physician, a lady of this city, who, one year before, had observed a slight degree of ulceration of the follicles of the left tonsil; which, together with the opposite gland, was moderately enlarged. Gradually, the disease extended, to the follicles of the larynx and trachea; and, at length, reached the bronchus of the affected side.

At no time had she observed any soreness of the other side of the throat; but, throughout the whole year, had the diseased action been confined to that side of the wind-pipe, where it first originated.

A few months, after the commencement of the disease, hoarseness, with pain, under the left clavicle, came on, and a cough supervened, which was attended, at first, with a scanty, viscid expectora-

tion, and, afterwards, by a free muco-purulent discharge.

When seen, on the occasion, alluded to above, her case exhibited the characteristic indications, of advanced phthisis. On exploring the chest of this patient, the right lung was found to be perfectly healthy; but symptoms, that could not be mistaken, were present, indicative of the existence of a tuberculous cavity in the summit of the *left* lung.

The tendency of the bronchial mucous membrane to take on sub-acute inflammatory action in connection with, and as a sequent of, other diseases both local and constitutional, is well known. We have seen that more or less of bronchial irritation has been found connected with a large proportion of those cases which have come under observation.

When this complication exists, it will be found that the remedies, which are ordinarily successful, in the treatment of other forms of chronic bronchitis, will fail to exert their accustomed remedial influence upon the disease. Under these circumstances, I have frequently employed the topical application of a solution of the nitrate, to the pharyngo-laryngeal membrane—even when the indications of the presence of follicular disease were not fully apparent—with the most gratifying results.

Should the bronchial symptoms remain, the topical applications in connection with constitutional measures should be continued—though at longer

intervals than at first—for some time after the disappearance of the laryngeal disease.

Of the employment of Topical Measures in the Treatment of Follicular Disease, when complicated with Pulmonary Phthisis.

When opportunities were first presented to my notice, for the employment of the nitrate of silver, as a topical remedy, in the above complication of disease, I hesitated to apply the solution to the laryngo-tracheal membrane, lest the bronchial irritation, that might follow, should increase the pulmonary lesions. But, after watching the effect of this remedy, in its application to the different morbid conditions of the mucous membrane, I became fully satisfied, that its influence would be salutary, if employed, even when tubercular lesions co-existed with follicular disease. Accordingly, during the last few years, I have used the nitrate of silver, as a local therapeutic agent, in a large number of cases of tubercular disease, where laryngeal symptoms have preceded, or accompanied the pulmonary affection.

Among the cases of laryngeal; and bronchial affection, which, during the year 1845, came under my care, twenty-five presented decided symptoms of pulmonary phthisis, complicated with follicular disease. As the pulmonary symptoms, in a majority of the cases, had supervened upon the original glandular affection, topical measures were em-

ployed ;—not with the expectation of their proving, ultimately remedial, but with the hope of deferring the pulmonary, by allaying the laryngeal disease ; and the success which has attended these efforts, in a majority of the above cases,—in mitigating the sufferings, and in prolonging the lives of my patients,—has been to me a source of the highest gratification.

To the history of a few of these cases, I shall briefly allude ; inasmuch as they are marked with peculiar interest, and are those of persons well known to a number of my professional friends. In an early stage of treatment, these patients came under the observation of several eminent medical gentlemen, of this city, by whom they were examined, and pronounced, at the time, to be labouring under decided symptoms of pulmonary phthisis.

The first of these cases was that of a gentleman from Connecticut, who came to New York in March, 1845.

Some months before coming to the City, he lost his voice, entirely ; but he was hoarse, and had had a cough, with laryngeal inflammation, several years before this occurrence. He had also had several attacks of hæmoptysis ; was emaciated, and so feeble, when he arrived, that he was not able to walk the distance of a block, without aid. He was suffering from a most severe paroxysmal cough ; had great dyspnœa, and a free expectoration of purulent matter. The throat was studded

with granulations, or enlarged follicles ; and it was with much difficulty that he could articulate, above a whisper. A dullness, on percussion, over the right lung, with an absence of the respiratory murmur, and pain and stricture, about the chest, with the above rational symptoms, marked the case as one of confirmed phthisis ; and such it was admitted to be, after a critical exploration of the chest, by several experienced medical friends ; among whom was one of the physicians of the New York Hospital, who is esteemed,—and justly so,—as a most accomplished auscultator.

Applications of a concentrated solution of the nitrate, were made to the throat, and into the larynx of this patient, for about two weeks. At the end of this time, his cough and dyspnœa were so much relieved, and his strength increased, that, from not being able to walk any distance, without aid, as was the case when he first arrived,—he, on the twelfth day of treatment, went on foot, down to the boat in which he came to the city, and back again,—a distance of more than three miles, without suffering any inconvenience.

After remaining several weeks under treatment, he returned to Connecticut, with augmented strength, and with his cough greatly relieved. Nearly three months after he left the city, his sister called on me in New York, and informed me that her brother had been able, after his return, to superintend his affairs ; which had not been the case

for nearly two years before; and in this favourable condition he remained when last heard from—which was more than a year after he left New York.

Another instance is that of Mr. A. L. Porter, a young gentleman of this city—about twenty-six years of age,—whose case was also examined by some medical friends, and in regard to whose lungs an opinion equally unfavourable with the one above, was pronounced.

When I first visited Mr. P., at his house—about the first of September, 1845,—he was confined to his bed. He had been labouring under symptoms of phthisis, over two years; he was feeble and emaciated; had had several attacks of hæmoptysis; and, on the day in which I first saw him, had bled more than a half-pint from his lungs. Of his throat, he had complained from the commencement; had hoarseness, and other symptoms of laryngeal, complicated with the pulmonary affection.

I commenced the use of topical remedies to the larynx, and from that day, to the present, he has had no return of hæmoptysis. In one week he visited me at my office; and continued to do so, at intervals, whilst under my care. His cough, soon lost its paroxysmal character, became very light, and in three months, he had gained fourteen pounds of flesh, under this treatment.

On the coming on of cold weather, he sailed for Havana, where he remained two or three months;

but he returned to New York early in the spring of 1846; and from that time, to the present, a period of nearly eight months, he has enjoyed an amount of health, sufficient to enable him to be constantly engaged in business.

John Hagan, of Essex street;—another patient who was examined by the medical gentleman, to whom I have alluded, came under my care, about the last of October, 1845; presenting the ordinary symptoms of confirmed phthisis. He was emaciated, very feeble, and was harassed by a severe spasmodic cough, which seemed to be, in a good degree, laryngeal, for he was hoarse, and complained of great soreness and irritation, in that region. So unequivocal, however, were the symptoms of the presence of pulmonary lesions, that the physicians, above alluded to, did not hesitate to consider the case, as one, complicated with extensive tubercular disease.

The applications to the larynx, had not been made more than a week, in his case, when his cough was diminished, greatly, in severity and frequency. As soon as this was mitigated, he commenced gaining flesh, and strength; and, of the former, added about fifteen pounds, to his weight, in the succeding three months. At this period he resumed his ordinary occupation,—which is that of a cabinet-maker,—and, for more than six months, has been able to devote himself to his business. He has a cough, which although light,

still remains, and the only remedy, which he has employed for the last half-year, has been, an application, once in two or three weeks, of the nitrate of silver, to the laryngeal cavity.

These cases have been adduced, not only on account of their individual interest; but more especially, because an opinion has obtained, among some of the profession, that topical applications, to the laryngo-tracheal membrane, were not appropriate, when tubercular lesions co-existed with follicular disease.

Other instances of the same character, and of equal interest, with the above, have come under my care, but, I omit them, in order not to multiply observations.

CHAPTER X.

Of the Treatment of Follicular Disease.

General Remedies.—In simple, or uncomplicated follicular disease, occurring in sound constitutions, topical medication alone, judiciously, and perseveringly employed, will prove efficacious in removing the local affection, in a large proportion of cases. When the disease is associated with other morbid derangements, and, particularly, when united with affections of the general system, constitutional means, in connection with topical remedies, will be required.

Nitrate of Silver.—There is one kind of gastric derangement, which is found, not unfrequently, to co-exist with the milder forms of follicular disease. It is the *estomac glaireuse*, of the French; or the follicular gastric dyspepsia, of modern nosologists. In this, as well as in other forms of indigestion, I have found no remedy to compare, in value, with the nitrate of silver, when internally administered. It may be given, combined with the extract of conium, or the extract of hops, in the form of pills, in doses of from one sixth to one fourth of a grain of the salt; twice or three times a day.

The incidental effect,—that of producing a dis-

coloration of the skin,—which has sometimes followed the administration of this remedy, is considered by some as an objection to its internal use. No evil of this kind need be apprehended, from continuing its employment, for one or two months, at a time. Dr. Johnson, indeeed, asserts, that there is not an instance on record, where the complexion has been affected by the medicine, when restricted to three months' administration.*

Iodine.—In quite a large proportion of the cases of follicular disease, which have come under my notice, where the morbid affection of the mucous cryptæ had been long continued, it has been found that there existed, more or less, of a diseased condition, of other parts of the glandular system. Symptoms, indicative of the presence of a derangement of the hepatic organs, have, frequently, been manifested in connection with follicular disease. Hence, iodine, or some of its preparations, have proved, in my hands, of essential service, in the treatment of this complicated form of the affection.

It is the opinion of Dr. Clark, that the action of iodine, on the animal economy, resembles, in a great degree, that of mercury. The effects of the two remedies may be similar, in some respects. The action of the organs of excretion, it is true, is promoted by both medicines, but not in the same degree. Paleness, or blanching, it is well known, is frequently produced by a course of mercury ; an

* Essay on the Morbid Sensibility of the Stomach and Bowels, p. 90.

effect which has been ascribed to the diminished number of the red globules of the blood ; while, on the other hand, an increased nutrition of the body, or *embonpoint*, is the frequent result of the employment of iodine. Under its influence,—Dr. Clark, himself remarks,—when it is judiciously employed, the patient recovers flesh, strength; and colour; hitherto pale, relaxed, and feeble, he becomes full, strong, and florid. From the influence which iodine has in causing the disappearance of visceral and glandular enlargements, it has been supposed, that its continued use would have the effect to produce general emaciation ; but this has been denied by many.—Lugol asserts, that instead of producing emaciation, it encourages growth and increase of size, and Dr, Manson, also, in his Medical Researches on Iodine, states that it exerts no peculiar, or specific influence, on the absorbents.

In the administration of iodine, in follicular disease, I have found, almost invariably, a specific effect produced upon the organs of secretion by the use of the medicine. For some time, after commencing the remedy, an increased quantity of viscid mucus is thrown off, by the diseased glandulæ ; and the patient often complains of a disagreeable taste, produced by the morbid secretions, from the faucial and pharyngeal membrane ; and, in some instances, the irritation of the throat is, at first, increased by this salt. After a while the secreted fluid is diminished in quantity, becomes

bland, and is of a healthier quality, while the lining membrane presents an improved condition. Equally salutary are the effects produced, ordinarily, on the secretions of the digestive organs, by the use of iodine.

The iodide of potassium, I have generally considered, as the best preparation for administration, in disease of the mucous follicles. Although the constitutional effects of iodide of potassium are very analagous to those of iodine, yet, it may be given in larger doses, and for a longer period, without producing disorder of the system, than the free iodine. When indications of a scrofulous diathesis are present, in any case, it will be preferable, and will prove more efficacious, to exhibit the two preparations in combination.

The protiodide of iron, after being employed, first by Dr. Thompson of London, in the treatment of phthisis, was for a time extensively used, both in England and in France, in this disease.

Several years ago Dr. Dupasquier, of Lyons, published some interesting statements, with regard to the favourable effects, produced by the use of the protiodide of iron, in the treatment of pulmonic affections.

Since his publication, it has been used, to some extent, in this country, in the treatment of these diseases, but its employment, as a therapeutic agent, has not been atttended with the equally encouraging results. I have frequently exhibited

this remedy, in affections of the pulmonary organs, but, I confess, I have not been fortunate in observing any decidedly favourable effects, resulting from its administration.

Mercury.—As the universal effect of mercury, upon the animal economy, is to produce increased activity, in the secretory and excretory organs, its employment in some forms of follicular disease, is in a high degree beneficial.

From the influence which mercury has on the secreting functions of the liver, Dr. Clark considers it, a most efficient and valuable remedy, in the tuberculous diathesis; more especially in torpid constitutions, but he advises it not to be carried beyond its alterative effect on the hepatic system.*

When there exists, in connection with follicular disease, a deranged condition of the digestive organs; or a diseased, or congestive state of the hepatic system; mercury in some of its forms, will prove an invaluable remedy. In the treatment of tuburcular affections, and in all forms of laryngeal disease, most writers consider calomel, as the most efficient and useful medicine of all the preparations of mercury.

In these cases of follicular disease, when the symptoms indicate the presence of a chronic thickening of the lining membrane, of the laryngeal cavity, calomel, administered to the extent of affecting the mouth, as recommended by Dr. Porter,†

* Op. citat. p. 234. † Op. citat.

is, undoubtedly, under these circumstances, the most appropriate for exhibition; but where the general glandular system is involved in the morbid action; or, even, when some forms of pulmonic lesions co-exist with the follicular disease, I have found, in these complications, the bi-chloride of mercury, the most efficient, and, altogether, the best preparation of this mineral.

In hepatization of the lungs, says Dr. Pereira,* the solid matter, deposited in the air-cells, is often absorbed, and the cells rendered permeable to air, by the use of mercury.

The bi-chloride of mercury, may be given in doses from one twelfth, to one sixth of a grain; and is best administered, in the form of pills † made with crumbs of bread, or combined with the extract of conium, or hyoscyamus; the best time for exhibiting which, is after meals.

In irritable subjects, opiates should be conjoined with it.

* Elements of Mat. Med. Vol. I. p. 194.

† The following is the formula of Dzondi of Halle, who is a great advocate, for the use of the bichloride of mercury:—℞. Hydrarg. chlo. corrosiv. gr. xii. Solve in aq. distil. q. s. adde Micæ Panis Albi, Sacharis Albi āā q. s. ut fit pilulæ numero ccxl.

Of these pills,—each of which contains the twentieth of a grain of the mercury—two may be given night and morning.

I have been accustomed to prescribe the following formula:—

℞. Hydrarg. chlorid. corros. gr. iv.
Extract conii ℈ij.
Misce; et in pilulas quadraginta divide.

Should these pills,—one of which may be given night and morning—irritate the mucous membrane of the stomach or bowels, one fourth, or one half of a grain of opium may be combined with each pill.

Prussic Acid.—The hydrocyanic acid was first employed as a therapeutic agent, by the Italian physicians near the commencement of the present century. Soon after its introduction into the Materia Medica, it obtained some celebrity, as a remedy, in disease of the pulmonary organs; and it has since been employed, with more or less repute, in this, as well as in other forms of morbid action.

In the treatment of disease, of the air passages, I have, frequently, administered the hydrocyanic acid; and in some instances, its employment has been attended, apparently, with happy effects; such has not been the result, however, in all cases. As this acid is considered a contra-stimulant, by many, its use is most indicated in those cases, where the presence of some degree of inflammation, would seem to preclude the employment of more active remedies. When given to allay the cough in pulmonic disease, I have found its efficacy much increased, by combining with it, a small amount of the sulphate of morphine.*

Sanguinaria.—In New England, and in some other parts of the United States, a decoction or tincture of the Sanguinaria Canadensis or Blood Root, is much used in bronchial and pulmonic affections. It is a stimulating expectorant; slightly

* ℞. Emulsio Amygdalæ ℥iv.
Acid. Hydrocyanic gtt. xl.
Morph. Sulph. gr. iij.
Misce. Sumat cochleare minimum ter die—dosin sensim augendo

narcotic; and when combined with opiates, will often prove a valuable remedy, in allaying the cough, and irritation, in some forms of follicular inflammation, complicated, with bronchial or pulmonic disease.

When inflammatory symptoms are not present, and the cough, which usually attends follicular bronchitis, is accompanied by a free expectoration, I am accustomed to administer, with much advantage, a saturated tincture of the root of the Sanguinaria.

The common tincture of the shops, which is prepared by macerating four ounces of the root in two pints of diluted alcohol, is, ordinarily an inefficient preparation, and does not, I am confident, contain the active principle of the medicine: to obtain this, absolute alcohol should be employed, and a saturated tincture procured, by macerating in two pints of the liquid, double the above named amount of the bruised root of Sanguinaria.

Combined with a small amount of the tincture of opium, or the sulphate of morphine, this medicine will often exert a powerful influence in diminishing the cough and expectoration, in some forms of bronchial irritation.*

* ℞. Tinct Sanguinariæ ℥iss.
Tinct. Opii. ℥ss.
Ol. Gaultheriæ gtt. x.
Misce; cujus capiat guttas viginti vel triginti, ter die.

Muriate of Ammonia.—Of the therapeutic effects of this remedy, when internally administered, but little is known; as in this manner, it is but rarely employed in this country. Among the German physicians it has obtained a high reputation as a powerful alterative, and a promoter of healthy secretions, in chronic diseases of the mucous and serous tissues.

It was employed by Dr. Cless, of Stuttgard, who speaks highly of it, as a remedy in the early stage of phthisis; and Dr. Sunderlin says that it not only promotes the mucous secretions but the cutaneous exhalations, and improves, also, nutrition and assimilation.

In combination with other remedies, I have frequently administered the muriate of ammonia, in follicular disease, when this affection has been complicated with sub-acute inflammation of the mucous membrane of the air-passages. In this form of the disease,—namely, where the bronchial and pulmonic tissues are involved in the glandular affection; and, when a troublesome cough is present,—I have found the following combination prove valuable in allaying irritation, and in promoting expectoration:—

℞. Murias Ammon. ℥ss.
Scillæ pulv.
Digitalis pulv. āā ℈j.
Opii pulv. gr. x.

Fiat massa, in pilulas triginti dividenda; quarum capiat unam ter in die.

Climate.—The influence of climate on the animal economy, and as a remedial agent in the cure of disease, has ever been considered by the profession, as of great value.

Of such importance have I been led to estimate the medical effects of certain localities, or conditions of the atmosphere, upon some of the diseases of the air passages, that I shall not hesitate to devote a few pages, to the consideration of this subject.

In 1840, I communicated, to the New York Journal of Medicine and Surgery, some "Observations on the Influence of Malarious Atmosphere, in the prevention and cure of Phthisis Pulmonalis."* My object, in that communication, was to demonstrate by facts and observations, the non-existence of pulmonary cousumption, in those localities, in our country, where intermittent fevers prevail; and, to show that, while those places are exempt from the disease, the inhabitants of others, in their immediate vicinity, but where marsh exhalations do not exist, are affected with pulmonary diseases to an unusual extent; although subjected to the same influences of temperature, habits, occupations, &c. Several cases, which came under my own observation, were given, where persons, presenting marked symptoms of tubercular phthisis, had been restored to perfect health, apparently, by residing in malarious districts.

* New York Journal of Medicine and Surgery, January, 1840.

From among the most interesting of these instances I shall record the following :—

A young lady, aged 16, had been labouring, for several months, under symptoms of incipient phthisis. She was hereditarily predisposed to the disease. Her mother and an elder sister had died of consumption ; and several near relations on her father's side. The prominent symptoms were, a short, dry cough ; pain in the left side ; a burning in the palms of the hands—particularly at night ; dyspnœa following the least exercise, lassitude, &c. Symptoms which were remarked by herself and the family as being the same with which her elder sister, who died, had been affected. With the other members of the family, medication had had, apparently, no salutary effect. Indeed, it seemed to have hurried them with greater rapidity to the grave. Under these circumstances, I advised her father to send her into the vicinity of the lakes, where she might be subjected to the influence of an *intermittent* atmosphere. For this purpose she spent the summer of 1831 in Whitehall. She had not been there many months before there was an evident improvement in her symptoms. Before the close of summer she had an attack of intermittent fever. It was slight,—having ceased after one or two paroxysms. Her improvement, after this, was rapid ; and before winter, she returned to her father with restored health. She is now married to a gentleman in New York, and, up

to the present time, has enjoyed uninterrupted health.

The two following cases came under my observation in this city:

A young gentleman, about 24 years old, of a consumptive family, suffered severely from an attack of the influenza, which prevailed to some extent in New York, in the winter of 1837. He came under my care the latter part of that winter; at which time he exhibited the following symptoms:—A frequent, hard cough, unattended with much expectoration; constant pain in the chest; pulse 100; debility; loss of appetite; tongue coated; respiration a little accelerated; skin hot and dry, during the latter part of the day, with some perspiration at night.

The ordinary remedies were employed, which were followed with some abatement of the cough, and the pain in the chest.

On the 10th day after I first saw him he commenced expectorating blood, which continued several days. At the end of three weeks, his strength had improved and his cough had considerably abated; but as these primary symptoms of a pulmonary affection still remained in a great degree, I advised his leaving the city and seeking a more genial clime.

He went first to Ohio, where he remained several months; and from thence to Michigan, where, in the spring of 1838, he had an attack of intermit-

tent fever. He returned to this city, about six months ago, in perfect health; not a vestige of that affection remaining, which he carried away with him.

In November, 1836, Dr. H., a practising physician of New York, caught a severe cold, which was followed by a cough, and, in a few weeks, with an expectoration of purulent matter. His cough continuing about three weeks from the attack, hœmoptysis supervened, and this was followed for some time, with a bloody, and muco-purulent expectoration.

These symptoms of phthisis becoming more alarming, as the winter advanced, he relinquished his practice, and sailed for Mobile, early in January, 1838. So unfavourably did his symptoms appear, at this time, that one of the oldest and most experienced physicians of this city remarked to me, after taking leave of him, that 'the Doctor would never live to return to New York.'

On the 4th of February, he arrived at Mobile, where he remained several months; but went to New Orleans, the June following, and from thence to Indiana; where, in August of the same year, he had an attack of ague, which continued for some time. About eight months after, he returned to New York in confirmed health, and renewed his practice, and up to the present day has had no return, whatever, of his pulmonary difficulty.

I could enumerate other cases, which have

come under my own observation, but will only allude to one other; the history of which was communicated to me, by my friend Dr. Woodward, formerly professor of Surgery, in the Vermont Academy of Medicine. Some time since, a young woman labouring under consumption,—apparently in its confirmed, secondary stage,—was brought to Castleton, the residence of Professor Woodward, to die among her friends. Her mother resided upon the borders of a small marshy lake, in the westerly part of the town,—a neighbourhood where all new residents are sure to be affected with intermittent fever. Thither she was carried, and Dr. Woodward was called to attend upon her. He found her, as he informed me, exhibiting every symptom of ulcerated lungs. Indeed, so apparently hopeless was the case, that the medicines he prescribed, were merely palliative; and he informed her friends, that no permanent benefit could be expected, in her case, from the adoption of any means.

Several months after this, being in that neighbourhood, he learned with surprise, that his patient was recovering; and on calling to see her, he, in fact, found her nearly restored. Her cough, and every other unfavourable symptom, had left her. Her health since, has been permanently established.

Dr. Woodward gave it as his opinion, that in this case—as well as in some other similar ones,

with which he has been familiar—the persons were restored to health by breathing an intermittent atmosphere.

If we examine into the past history of our own city, the same facts will be established. Cadwallader Colden, who wrote an account of the climate and diseases of New York, more than one hundred years ago, says, in speaking of the diseases of that day, 'we have few consumptions or diseases of the lungs. I never heard of a broken-winded horse in this country. People inclined to consumption in England, are often perfectly cured by our fine air.'* It would seem that the climate, at this early period of our country, when the winters were long and intensely cold, would have been much better calculated to induce pulmonary affections, than it is at the present day.

According to the testimony of the same writer, the winter then, commenced about the middle of November, and continued severe, until March. During this period, the Hudson river was often 'frozen over at the town, where it is about two miles broad and the water very salt, so that people passed over upon the ice in crowds.' †

At that time, and for many years subsequent to that period, New York was surrounded with lagoons, and marshy grounds, from whence, during the summer months, those malarious exhalations

* American Medical and Philosophical Register, Jan. 1811, pp. 309–10.

† Ut supra.

arose, which so often proved the exciting cause of 'intermitting fevers, cholera morbus, and fluxes,' which, as the above writer states, were the prevailing diseases of that day.

As improvements have progressed, these fenny grounds and stagnant waters have been drained off, the sunken places filled up, and intermittent fevers have as gradually declined. But with this declension of ague, phthisis pulmonalis has steadily and fearfully increased.

Within a few years a work * has been published in Paris, by M. Baudin—a physician of some eminence in the French army, which contains some interesting statistics on this subject.

M. Baudin, who has enjoyed—according to the British and Foreign Medical Review, in which his work is examined—many opportunities for observing the effects of marsh miasmata, in several parts of France, Germany, Spain, Greece, and the Algerine districts of Africa, has embodied in this work many important observations and facts, which go to establish the truth of this same doctrine; namely,—"the antagonism of the paludal poison to certain pathological conditions, and more especially, to the tubercular diathesis."

Among the many confirmatory facts, which M. Baudin has adduced, are the following:—"The

* Traité des Fiévres Intermittent, Remittent, et Continues des Pays Chauds, et des Contrées Morécageuses, etc. Par J. C. M. Baudin. Paris, 1842. 8vo. pp. 336.

rarity of diseases of the chest, at Algiers, is such, that it has happened to me to visit many hundreds of fever patients without having occasion to practise, in a single instance, auscultation or percussion of the respiratory organs. Among a total of twelve thousand eight hundred and fifty patients, whom I have treated, either in the army of Africa, or at the Lazaretto of Marseilles, (after their return from Africa,) I have met with only thirty-one cases of consumption, of whom twenty-five had incontestably, been affected with tubercle, before having embarked for the Morea or Algeria." * "But, while consumption," M. Baudin adds, "is thus proved to be extremely rare in the essentially febriferous part of Algeria, the immunity from the tubercular diathesis appears to decrease, in proportion as the country becomes more healthful, in respect to marsh diseases; so that a district often further South, but less marshy than the coast, predisposes so much the more to consumption, the less it is subject to fevers." †

* Op. citat. pp. 72–5.

† This discovery of M. Baudin having been brought before the "Société Royale de Médecine de Marseille," that learned body declared that, "it is one of great importance, and our colleague has all the merit of it, for no one that we know of has made it before him." Now if any merit in this matter belongs to either of us, I shall lay claim to it, from priority of discovery, as my essay, on this subject, was published early in 1840,—more than two years before M. Baudin's work made its appearance; and, moreover, it will be seen from that communication, that I was in the practice, —as early as in 1830,—"of advising my consumptive patients to visit places where an aguish atmosphere prevailed."

But neither to M. B. nor to myself, belongs the merit of discovery, so far

Two years after the publication of M. Baudin's work, namely, in 1844, a communication was made to the Royal Academy of Medicine, of Paris, by M. Nepple, a French physician of eminent talent, on "The Antagonism of Phthisis and Intermittent Fever," in which are embodied many important, and most interesting observations, on this same subject.

Among other facts recorded, M. Nepple states as follows:—

During the eleven years that were comprised between the years 1818 and 1829, I practised in the canton of Montluel (Ain*), which is composed

as this matter is concerned; for, a knowledge of this exemption from pulmonary diseases of many parts of our country, where intermittents abound, and also of the fenny districts of England, has existed among the inhabitants of those regions for many years; and the attention of the profession has been called to this subject from time to time, during the last thirty years, by writers who have remarked the phenomenon. Although, so far as I was acquainted, in this country, up to the period of the publication of my paper, the employment of miasmatic exhalations, as a *therapeutic agent*, in the treatment of pulmonary diseases, had not been recommended; nor had cases been given, where its influence, in these affections, had been tested. Since the publication of that paper, however, I have received information from many physicians, who have sent their consumptive patients into that part of the country, where intermittents are rife, and who, after a time have returned, restored to health, or greatly benefited by the operation.

Yet, we need still further observations on this subject. It is one, well worthy of a thorough investigation. Pulmonary Consumption is, of all other diseases, the opprobria medicorum of the present day; and, so long as one-fifth of the deaths in our country, as well as in almost all others,—occur from this disease, it becomes the duty of every medical man to investigate this subject, with an untiring assiduity, until a remedy be discovered.

* The department of the Ain is bounded on the east by the Jura mountains, on the west by the Saone, on the south by the Rhone, and is crossed

of several districts, some of which are marshy, and some quite healthy. I was then much struck by the small proportion of cases of phthisis, scrofula, and goitre, which the marshy localities presented. The frequency of these diseases appeared to decrease as the elements of impaludation became more numerous and more general; so much so, indeed, that in the farms and villages situated in the most impaluded districts, I seldom discovered any traces of tuberculisation.

On my mentioning these remarks to a fellow-practitioner, Dr. Dutèche, whose district was much more marshy than mine, he answered that his attention had never been directed to the subject, but that what I said was a ray of light to him, and brought forcibly to his mind, the fact, that he had never seen any cases of phthisis or scrofula in various parishes which he named, Marlieux, Versailleux, Lachapelle, St. Nizier, all situated in that part of the country in which the ponds are the most numerous, and the population most debilitated by intermittents. He added, that so convinced was he that the atmosphere of this district must exercise a favourable influence upon the first stages of phthisis, that he would at once establish a sanatorium for tubercular diseases, in an old mansion

from North to South by the river Ain. It is covered by ponds, lakes, and marshy swamps, and is, perhaps, of all France, the district in which intermittents are the most general, and exercise the most baneful influence on the population.

which had been abandoned by its proprietors on account of its insalubrity. This plan, however, was never realized.

M. Nepple also addressed inquiries to many other well-informed medical men, who are practising physicians in the different marshy districts of France ; from all of whom he received answers, confirmatory of the results at which he had arrived.

From having been engaged, for several years, in the early part of my professional life, in practising, in the vicinity of marshy districts, I had observed many facts on this subject, and was, long since, well convinced of the incompatibility of pulmonary phthisis and intermittent fever. Accordingly, for many years, I have been in the practice of advising my patients, who were labouring under phthisis, or follicular disease, complicated with phthisis, to visit places where an aguish atmosphere prevails. In many instances, the result has been decidedly beneficial.

This subject,—the influence of climate upon diseases,—especially the varied climate of our own country, has not, I am confident, received that attention from medical men which its importance demands. If, indeed, it be true, as some naturalists assert, that the infinite variety of form, colour, constitution, and moral character, which the different nations, tribes, and races, present upon the surface of this globe, have been marked by the slow hand of time, through the instrumentali-

ty of climate, what may not be expected from the same agent, in the cure of diseases, when the physical properties of climates, in their different localities, shall be thoroughly investigated, and their influence upon the human constitution, and their *modus operandi* upon diseases, shall be distinctly understood ?

APPENDIX.

After the preceding sheets of this work had gone to press, I had the honour of meeting in a neighbouring city, of another State, several highly intelligent medical gentlemen, in a case of laryngeal disease, of great interest.

Among the number present, was one of the professors of the Medical School, of that city;—a gentleman of high attainments, in his profession, and, withal, an accomplished anatomist. This physician, never having seen medicinal agents introduced into the laryngeal cavity; declared, in my presence, on being asked his opinion, in the matter, that it was "physically, and anatomically impossible, to apply topical remedies, below the epiglottis." On making some inquiries, I ascertained that this opinion of Prof. ——, was entertained, almost universally, by the medical men of that city.

Within a short period, I have been visited, by a large number of professional men, from different parts of this State, and from different States of the Union; many of whom have honoured me, by being present, from time to time, and witnessing my operations. From these gentlemen, I have also learned, that the same skepticism, on this subject, obtains, very generally, among the medical men, throughout the country. I have, therefore, deemed it advisable, to substantiate, by the testimony of others, what, in the preceding pages, I claim to have accomplished. Accordingly, I addressed a note of inquiry, to several medical gentlemen, many of whom,—when the question of intro-

ducing medicinal agents into the cavity of the larynx, was first proposed to them,—were entirely incredulous as to its practicability; but whose opinions,—as will be seen from their communications,—have since undergone an entire change. From them, I received the following replies.

Sustained by the opinions, and experience of such men —some of whom are well known to the profession throughout the country; and, who are as incapable of deceiving, as they are of rejecting any improvements, however humble their origin, whose tendency is to advance the cause of science, and humanity,—I shall allow myself to feel no particular anxiety, about the opinions of those members of the profession, who may still remain incredulous on this subject:—They are as fully entitled to their belief, as they are to all the benefits which may result from their skepticism!

No. I.

From Dr. Charles A. Lee, Editor of the New York Journal of Medicine and Surgery.

New York, July 10th, 1846.

To Horace Green, M. D.

My Dear Doctor,

It is with great pleasure that I bear my testimony, not only to the practicability, but also the efficacy of caustic applications, made to the internal surfaces of the larynx. Soon after the practice of cauterizing this organ was first introduced into this city, by yourself, in 1839, I was favoured with repeated opportunities of seeing you perform the operation of introducing a sponge below the glottis, wet with a strong solution of nitrate of silver, as well as of watching the immediate and ultimate results thereof. It is proper that I should remark, that my previous notions, as to the

harmlessness and practicability of this operation, were altogether erroneous;—for, like many others, I did not believe it possible to introduce a foreign body below the epiglottis; or, if it could be done, that it would be attended with any benefit to the patient. Here, however, as in many other cases, experience upsets all *a priori* reasoning. The mistake arose from confounding the organic sensibility of the larynx, that sympathetically causes the cough, with the animal sensibility of this organ, which is extremely obtuse. It is now demonstrated, that the application of nitrate of silver to the pharynx, larynx, neck of the uterus, urethra, &c., is attended with very little pain, and so far from increasing, allays irritation. I have myself been in the habit of cauterizing the larynx, for the last two years, in cases of chronic laryngeal inflammation, and bronchitis, and with the best effects. Many patients have, in this manner, been restored to health, where all previous means had utterly failed.

I am happy to learn that you are about to publish the results of your valuable and extensive experience, in the treatment of this class of diseases. Such a work is especially needed to meet the wants of the profession, in this country; and I know no one who is better able to do the most ample justice to this important subject, than yourself. That success may continue to attend your efforts, in the cause of science and humanity, is the wish of your very sincere

Friend and humble servant,
CHARLES A. LEE.

No. II.

From Dr. Alfred C. Post, one of the Surgeons of the New York Hospital.

No. 4 Leroy Place,
New York, July 2d, 1846.

My dear Doctor,

In answer to your letter, in which you ask my opinion with regard to the use of local applications to the interior of the larynx, I beg leave to offer the following statement —which you are at liberty to use, according to your discretion.

When the proposition to introduce foreign substances, especially a strong solution of nitrate of silver, into the larynx, was first suggested to me, it met with my unqualified disapprobation. I had very strong doubts as to the practicability of making such applications, and I was decidedly of the opinion that if they could be made, they would prove highly irritating and injurious to the sensitive membrane which lines the air-passages. But after seeing your practice, and studying more carefully the anatomy of the parts concerned, I came to a contrary conclusion. Within the last year I have been in the frequent habit of applying a strong solution of nitrate of silver, varying from two scruples to two drachms to the ounce of water, to the mucous membrane lining the fauces, pharynx, and the upper part of the larynx, and I have never met with any injurious consequences from the application. In a number of instances, I have exposed distinctly to view the laryngeal surface of the epiglottis, and passing over it the sponge saturated with the caustic solution, I have had ocular demonstration of its application to the mucous membrane of the larynx. I have usually observed, immediately afterward, a moderate amount of irritation, sometimes a deep sonorous inspiration and a momentary dyspnœa. In one case, the sputum, following the

application, was very slightly tinged with blood. In almost every instance, the effect of the application has been salutary, relieving the sense of soreness, of which the patient previously complained, diminishing greatly the amount of viscid mucus, which was accumulated in the throat, and improving the voice. The cases in which I have adopted this treatment, have been chiefly those of chronic inflammation of the pharynx and larynx, usually associated with more or less derangement of the digestive organs, but without any other obvious disease. In the laryngeal inflammation attending the advanced stage of phthisis, I have seen good palliative effects from the application of nitrate of silver to the larynx.

Yours sincerely,
ALFRED C. POST.

HORACE GREEN, M. D.

No. III.

From James Bryan, M. D., of Philadelphia, Pa.

More than three years ago, my friend Dr. Bryan, visited me at my office, in New York, and after having seen medicinal agents introduced into the larynx, adopted this plan of treatment, in his own practice.

PHILADELPHIA, Sept. 6th, 1846.

DEAR DOCTOR,

In accordance with your request, I hereby freely send you my opinion of your mode of treatment of "diseases of the air-passages."

More than three years have elapsed since I commenced putting the practice to the test; and the result is, that I feel perfectly satisfied of its practicability and utility. Frequent applications have convinced me, that, in adults, *particularly*,

there can be no doubt, either "anatomically" or "physiologically," of the facility with which applications to the larynx may be accomplished. I have by them, been enabled to cure chronic diseases of seven years' standing, in patients who have had the advice of the most skilful physicians, without being materially benefited. A cure just occurs to me of a lady whose fate, in her own, and in the estimation of her friends, was fixed, with "*throat consumption*," who was dismissed two weeks ago, with all the appearances of a complete cure. In her case, large quantities of pus were thrown up, after the instrument, giving indications, with the general emaciation, debility and hectic, of disease in an advanced stage. She has now no cough; no hectic; or night sweats; and in fact, seems perfectly well, becoming daily stronger.

I have also had the pleasure of teaching the practice to a respectable number of pupils, who have attended my "Surgical Lectures," and am happy to find that many of them, on entering their profession, are trying the new practice with success to their patients, and honour to themselves.

I remain, yours truly,
JAMES BRYAN.

N. E. corner 10th and Arch sts., Philadelphia.

No. IV.

From S. Conant Foster, M. D., of New York, the treatment of whose own case is recorded on page 226.

Dear Doctor,

In answer to your note, requesting me to communicate to you the result of my experience of the mode of cauterizing the larynx, adopted by you, I beg to state:—

1. That I have frequently, during the last five or six

years, seen you apply a solution of the nitrate of silver, of the strength of forty grains to the ounce, and even stronger, to the larynx, in cases of disease of that organ.

2. That I have in a number of cases applied the same remedy myself.

3. That I have tested the effects of it, upon my own person, it having been applied by you, two or three times a week, for several weeks, to my throat.

4. That in all the instances in which I have known it to be applied, I have never once seen any bad effects resulting from it; while, on the other hand, it has invariably proved of great service, where the disease was purely local; and in many cases, where there was undoubted disease of the lungs, it has afforded relief.

The following case, is a comparatively mild one; but shows the effect of the remedy well, it having been the only means used in the treatment.

Miss ——, after having taken a severe cold, with sore throat, exerted her voice, naturally a very powerful one, in singing, before she had recovered from the hoarseness. She remained more or less hoarse, had a constant tickling sensation in the throat, with cough, at times, and an increasing desire to clear the throat. If she attempted to sing, her voice wholly failed her, in a few moments.

This state of things had lasted, several years, when she came under my care. Her health in other respects, was perfectly good. On examining her throat, I found the whole of the posterior fauces, in a highly congested state; the epiglottis, which could be brought fairly into view, of a bright red colour, and the glands beneath the mucous membrane of the throat, enlarged and prominent. I commenced, at once, the application of the nitrate of silver, in solution of forty grains to the ounce; carrying the sponge containing it, behind the epiglottis, and into the cavity of the larynx,

and afterwards passing it over the mucous membrane of the pharynx, and tonsils.

The first two or three applications were followed by slight coughing and dyspnœa, for about a minute, and some nausea. After a few applications, however, these symptoms did not appear. I continued the same process every second or third day, for about five weeks, at the end of which time, the redness of the throat had entirely disappeared; the follicles beneath the membrane, were no longer perceptible, the sense of irritation and tickling, was removed, and the voice had become perfectly clear, enabling her to sing, for a long time, without fatigue or hoarseness. It is now over a year and a half that she has been wholly free, from any difficulty of the sort.

The application causes a burning sensation in the throat, and when the sponge passes into the larynx, is followed by a sense of constriction, with difficult inspiration, for a minute or two, and then a copious secretion of mucus, after which, the throat feels clear, and devoid of irritation, for one or two days.

In my own case, when the applications were made, it was easy to tell, when the probang passed into the œsophagus, which sometimes occurred, by the different sensations produced, and the absence of dyspnœa. This latter symptom became much less severe, after two or three applications, and, especially, when I had adopted the plan of inflating the lungs, before the introduction of the instrument, and then letting the air pass out slowly.

I regard this practice, as of great value, and as eminently worthy the attention of the profession.

I am, dear sir,

Yours very truly,

S. CONANT FOSTER.

Dr. Horace Green.

No. V.

From A. L. Cox, M. D., of New York.

My dear Doctor,

In accordance with your request, I shall proceed to give you my opinion, on the possibility of making applications to the laryngeal surface of the epiglottis, into the laryngeal sinuses, and down to the rima glottidis and chordæ vocales.

When you first mentioned this practice to me, and drew my attention to the work of Trousseau and Belloc, I was disposed to hesitate, as to the possibility of making these applications; but your experience, and opinion, weighed powerfully with me, and my own observation of the admirable effects of nitrate of silver, as an application to the mucous membrane, in other parts of the body, as well as the great desideratum which such an additional resource to our therapeutic means in diseases of these parts would be, induced me, at once, to pay a serious attention to the claims of so novel a practice. My first inquiry was into the anatomy of the subject. The every-day practice of surgery has taught me never to depend on the original knowledge of my first studies in anatomy, but to make a particular investigation, previous to every important operation. In like manner, I proceeded to the inquiry of the relative position of these parts to the mouth; and of the applicability of sponges to the interior surface of the larynx, down to the rima and chordæ vocales.

A subject presented itself to me, the muscles of whose throat and neck had been dissected sufficiently to exhibit a profile of the tongue and larynx in situ. I could here see the epiglottis standing perpendicularly, at the root of the tongue, within reach of my finger from the mouth, and was able at once to recognise the great facility of the applica-

tions, which you have practised with such signal benefit to your patients, for the last six years.

If your own manuscripts did not contain so many appropriate and graphic cases, illustrative of the good effects of the treatment you recommend, I should be tempted to narrate several cases which have fallen under my own care. Such narrations, however, I think unnecessary, yet I will say that my experience of the treatment of follicular disease of the throat and larynx, is such, as entirely corroborates your own, and that several cases have occurred to me, in which I am perfectly satisfied, that life itself has been saved, and health restored, by the employment of these applications, in addition to other resources, before in our possession.

The idea that the sponge cannot be passed into the larynx, down to the rima glottidis, is merely the crude opinion of those who presume to dogmatise without inquiring. Even the common rule of surgery, in respect to the use of a stomach tube, that a large one should be preferred, lest it pass into the larynx and trachea, shows how familiar to practical surgeons is the possibility of such an accident. And any surgeon, or anatomist, who is sufficiently rash to assert the impossibility of introducing a properly constructed instrument, not only into the laryngeal fossa, but even through the rima glottidis and into the trachea itself, displays an unacquaintance with the actual occurrences of practical surgery, as well as a careless knowledge of the anatomical structure, of the vocal and respiratory apparatus. I have seen a surgeon introduce a small tube (such as never should be used for the stomach) into the trachea, and inject water, so as almost to suffocate his patient; and I have heard, on good authority, that another gentleman was candid enough to admit, that in passing the stomach tube, with a view of removing laudanum in cases of suicide, he had on an aver-

age of every sixth case, made that awkward mistake. Without being able myself, in the same manner to exemplify my own candour, I can say, that it is always a rule which is constantly in mind on such occasions, to be very careful to avoid the larynx, for fear of introducing the instrument into the trachea instead of the œsophagus. A caution, which would not be useless to surgeons, who are so entirely sure, that it is impossible to reach even the chordæ vocales, in this manner.

In the month of April, last, I was called to the case of a suicide, in a neighbouring town, in which the patient, a young woman, had with a razor cut off the tongue exactly from the larynx, making a horrible gash, or rather chasm. The larynx was drawn down several inches. I could plainly see the epiglottis in its proper position, on the larynx, and passed my finger into the mouth so that the end of it was seen in the chasm, as far as the second joint. Now, if no solution of continuity had here happened, all that part of my finger would have been available in application to the epiglottis and rima glottidis. This inquiry was made with such facility, that no time was lost by it, and no injury done to the patient, and yet the case furnished as fine an illustration of the relation of parts, as could have been obtained by an elaborate dissection.

In another case of suicide, I saw the incision take a direction similar, but a little lower, so as to take off the epiglottis completely, which remained attached to the tongue. In this case the patient recovered.

In conclusion, I cannot refrain from expressing to you, my deep conviction of the great value of surgical treatment in the topical application of appropriate remedies to the throat and larynx; not only in cases where the disease is confined to those localities, and which are consequently within the reach of cure, but also in tubercular cases, and

even in the latter stages of phthisis, where recovery is impossible; but where ulcerations of these parts are very common, and the cause of great suffering.

At this moment I have under my care, a medical gentleman, who was pronounced to have had tubercles six years ago, by a diagnostician of note, in this city, and whose life has only been prolonged by the exercise of incessant care, who has derived great comfort from relieving the ulcerated follicles, which caused him the severest suffering. The edge of the epiglottis, the fossa in front and at its base, and the sides of the pharynx, at the root of the lateral half-arches of the palate, being the seat of the ulceration.

In another patient, a very large ulcer, the source of great annoyance, situated between the left tonsil and the posterior lateral half-arch, was relieved of its soreness, by the application of the nitrate of silver. And in this case, as well as the other, although neither patient can by any possibility recover, yet great comfort is administered by this method of relief, and the patient is by no means disposed to undervalue the service thus rendered.

In conclusion, I have only to express my entire confidence in the general principles of your pathology and therapeutics, and am happy to know that your exertion in the practice of the noblest of the professions, is not unappreciated, either by the patients who employ you, or by that class of the profession who have been sufficiently favoured by nature and education, to transact for themselves *their own thinking*.

Very truly and respectfully,
Your friend,
ABM. L. COX, M. D.

No. 11 Carroll Place, August 21st, 1846.

HORACE GREEN, M. D.

EXPLANATION OF THE PLATES.

PLATE I

This plate represents the early stage of Follicular Disease of the Throat. The mucous follicles, especially those studding the upper and posterior part of the pharyngeal membrane, appear enlarged and inflamed. The intervening membrane being deprived of its Epithelium, presents a slightly raw or granulated surface. The anterior and posterior arches of the soft palate are natural; but the uvula, which is elongated, has its most pendent portion covered with slightly enlarged and diseased follicles.

It is as faithful a sketch as could be taken of the appearances, in case No. IV., before topical medication was employed.

PLATE II.

Plate II., exhibits a view of diseased follicles in a more advanced stage; some of them, being in an ulcerated state. These ulcerations are irregular und superficial, having slightly red and elevated edges; some of them appear coated with an opaque adhesive mucus, or a muco-purulent secretion; others are hypertrophied, and in an indurated state. In some instances, the pharyngo-laryngeal follicles may remain in a state of hypertrophy and induration, for years, before the above form of structural lesion shall occur.

PLATE III.

This plate represents the appearance of a throat, in a case where pharyngo-laryngeal disease had existed several years.

The mucous membrane lining the posterior cavity of the fauces is studded with granulations, interspersed with many ulcerated points. The uvula is greatly elongated and enlarged, and the tonsillary gland, on each side, is hypertrophied and ulcerated, the enlargement being partly concealed by the anterior arch.

In this instance complete aphonia; consequent on an ulcerated condition of the follicles, in the vicinity of the vocal ligaments, had existed for a period of more than fourteen months. (See Case IX.)

PLATE IV.

Plate IV. exhibits a view of a throat presenting that granulated and cavernous appearance, which is often present, in those cases where follicular disease has burrowed, for a long period, about the pillars of the fauces, and in the tissues of the pharynx.

The uvula is enormously enlarged and elongated; it is over two inches in length, and at its largest diameter, nearly half an inch in thickness. The patient in this case had, on several occasions, when lying on his back, been nearly suffocated by the extremity of the elongated uvula being drawn, in the act of inspiration, into the opening of the glottis. (See Case XIII.)

PLATE V.

In this plate is represented the appearance of a throat where follicular disease is complicated with enlarged and indurated tonsils.

The uvula, which is also hypertrophied, appears wedged in between two enormously enlarged, and diseased tonsils. No portion of the pharyngeal membrane can be seen, as the morbid mass completely blocks up the view. Although the tongue is depressed by the bent spatula, not more than one half of the enlargement is revealed.

After excising the tonsils, the pharyngeal membrane could

then be seen, studded with enlarged and ulcerated follicles. (See Case XI.)

PLATE VI

This plate, presents a correct representation of the morbid appearances described in Case XXIII., where the disease had extended into both the œsophagus and the trachea.

Fig. 1. represents a part of the trachea, with a portion of the right and left bronchi.

(*a.*) The mucous membrane of the trachea inflamed, and a number of the follicles hypertrophied.

(*b.b.b.*) The posterior wall of the trachea destroyed by the ulceration, which had extended through the cellular and muscular coats of the œsophagus.

(*c.*) An opening into the left bronchus, caused by the same ulceration, thereby forming a direct passage from the œsophagus into the lungs.

Fig. 2 represents the larynx and the upper part of the trachea, from the same individual with the above, which was divided and removed from the superior portion of the wind-pipe.

(*d.d.*) Exhibits a view of the epiglottis, slightly œdematous and inflamed.

(*e.e.*) Thyroid cartilage denuded, and partly necrosed.

(*f.*) Arytenoid cartilages œdematous.

(*g.*) The crycoid cartilage extensively ulcerated, and in a state of necrosis.

(*h.*) The upper portion of the trachea laid open, its mucous membrane inflamed, and its follicles in an hypertrophied condition.

PLATE VII.

Exhibits a drawing of the Instruments which are employed by the Author for making medicinal applications into the laryngeal cavity, for excision of the enlarged tonsils, and for truncating the elongated uvula.

Fig. 1. The rod of this instrument is composed of whalebone; is about ten inches in length, curved at the smallest end, to which is securely attached a small round piece of fine sponge. (*a.*) The curve which will be found suited to the greatest number of cases, is one, which will form the arc of one quarter of a circle (as in the drawing), whose diameter is four inches.

Fig. 2. Knife for the excision of hypertrophied tonsils, having a strong handle, with a long slender blade, slightly hawk-billed, and terminating in a blunt or probe point.

Fig. 3. Pair of crooked forceps; one blade of the instrument terminating in small claws; the other, of the form of a double tenaculum. With this instrument the tonsil may be seized, drawn out from between the pillars of the fauces, and firmly held, when it can be readily excised at any point.

Fig. 4. Curved scissors, for truncating the uvula.

Fig. 5. Forceps, with long and slender blades, finely serrated, for the purpose of seizing the extremity of the uvula, which may be retained, while excision is made with the scissors, above described.

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PLATE I.



Drawn from Life by H. Green.

G. & W. Endicott Lith. New York.

PLATE II.



Drawn from Life by H. Green

G. & W. Endicott Lith. New York.

PLATE III.



Drawn from Life by H. Green.

G. & W. Endicott Lith. New York.

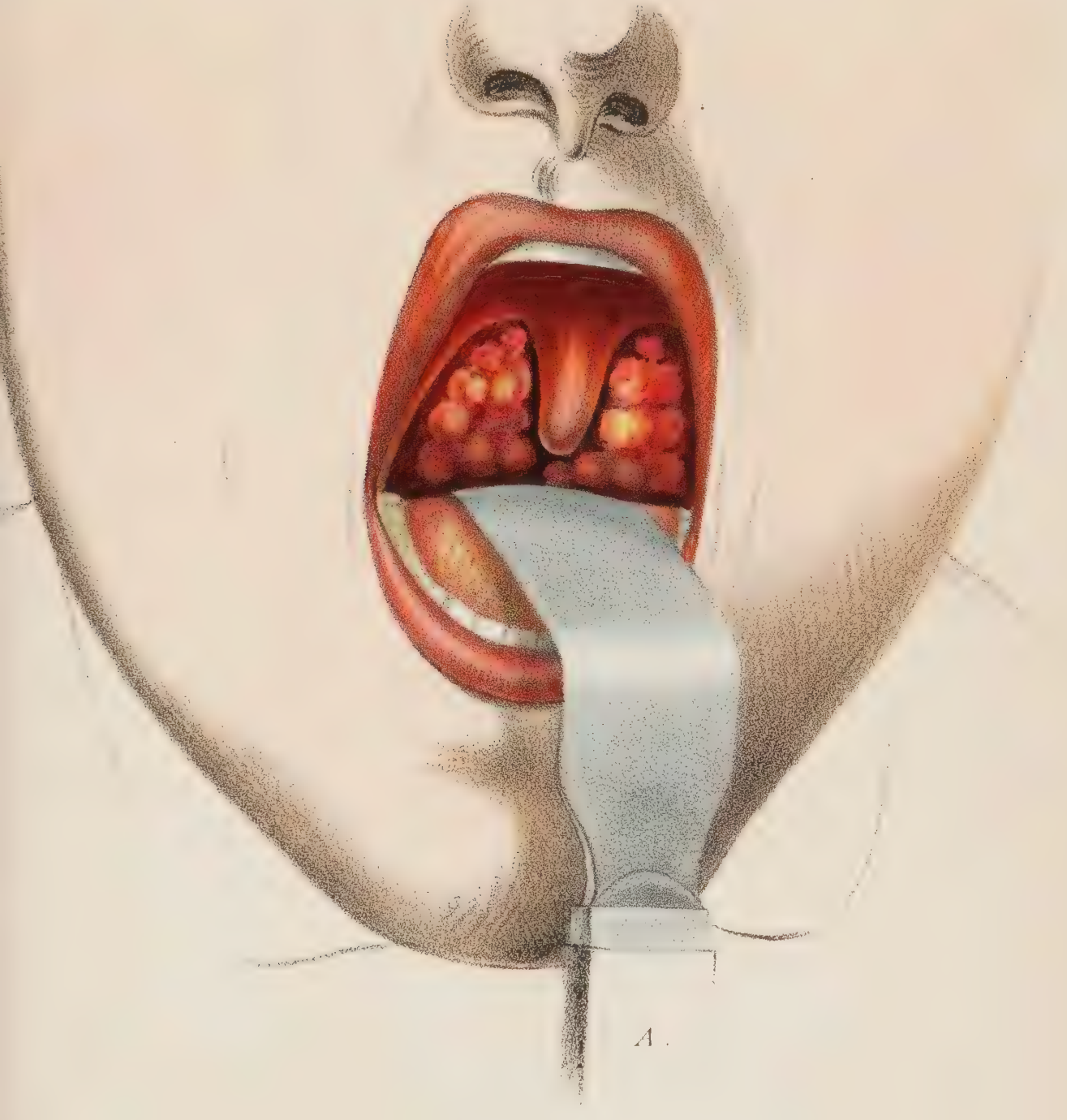
PLATE IV.



Drawn from Life by H. Green.

G. & W. Endicott Lith. New York.

PLATE . V.



Drawn from Life by H. Green.

G. & W. Endicott Lith. New York.

PLATE VI.

Fig 1.

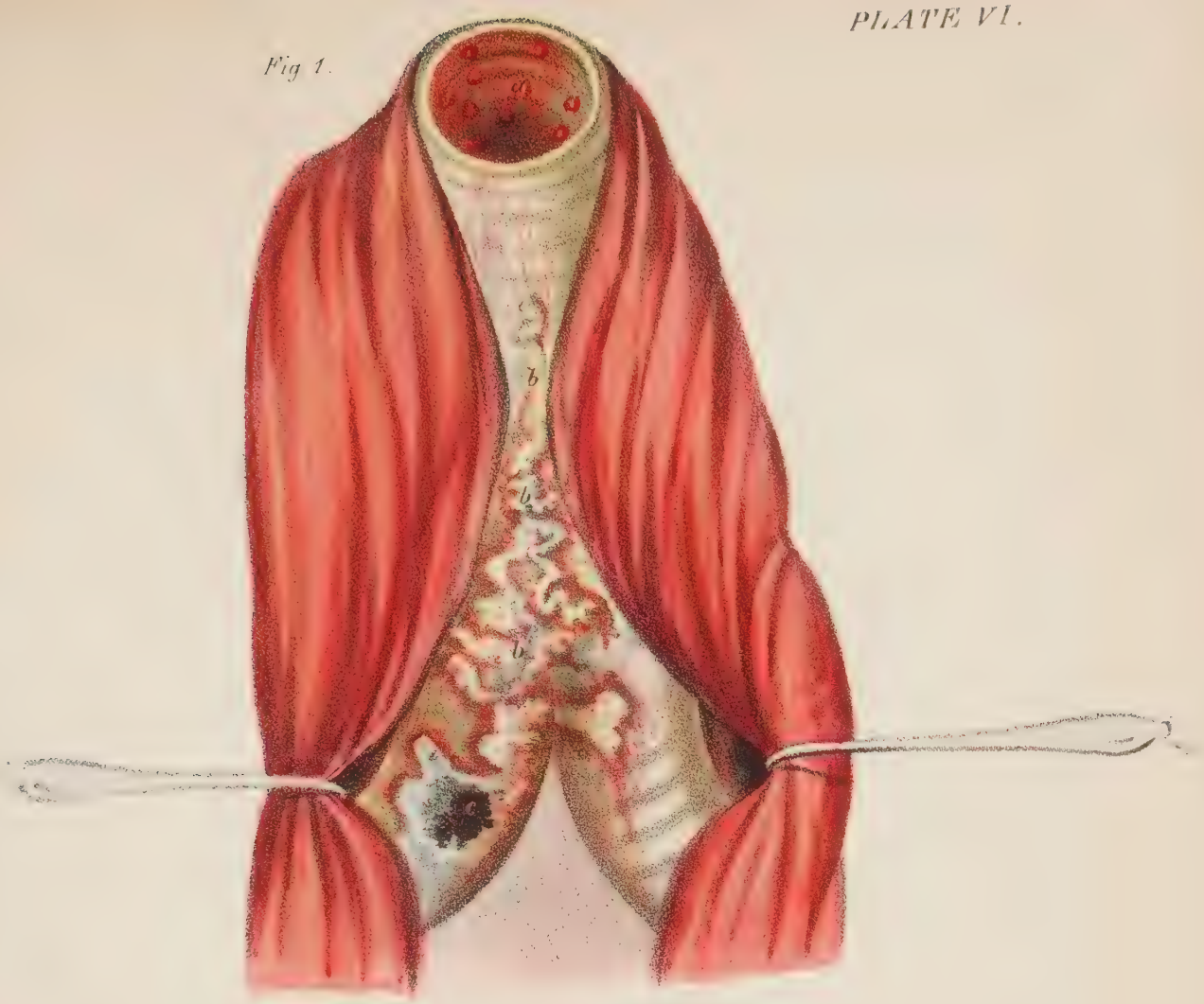


Fig. 2.



Drawn from Nature by H. Green.

G. & W. Endicott Lith. N. York

Fig. 1.

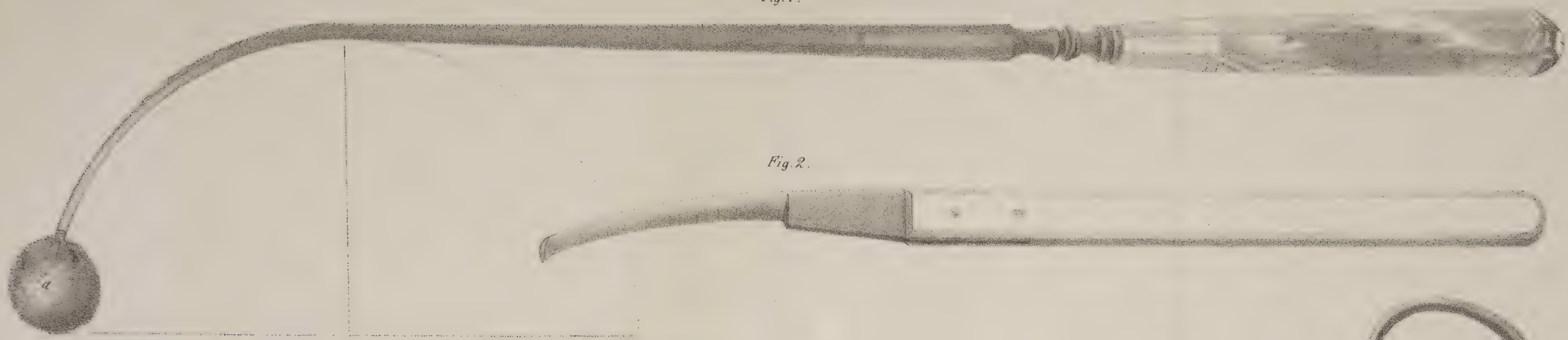


Fig. 2.

Fig. 3.

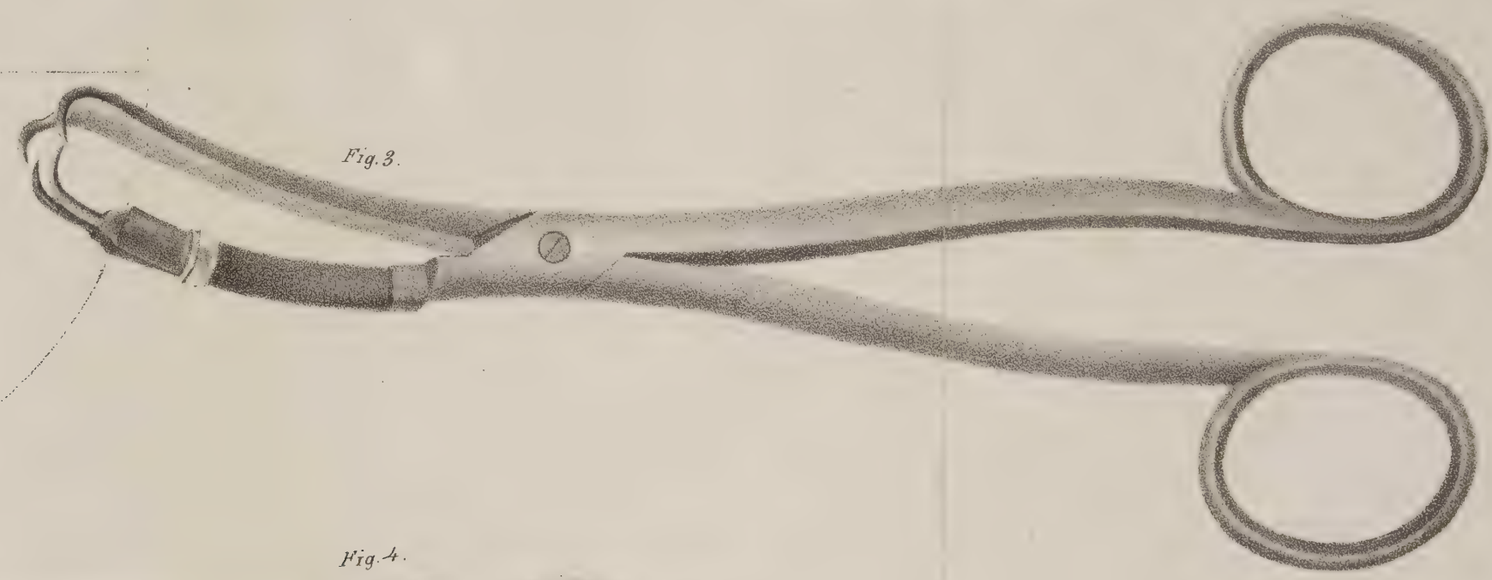


Fig. 4.

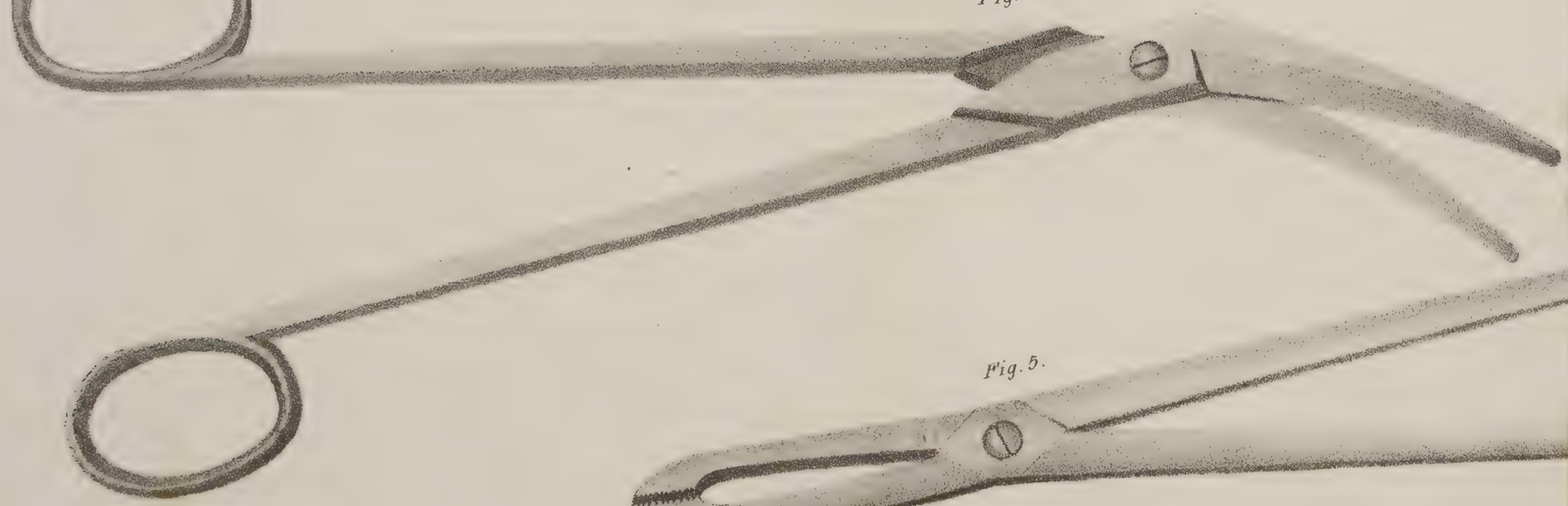


Fig. 5.

G. & W. Endicott Lith. New York.